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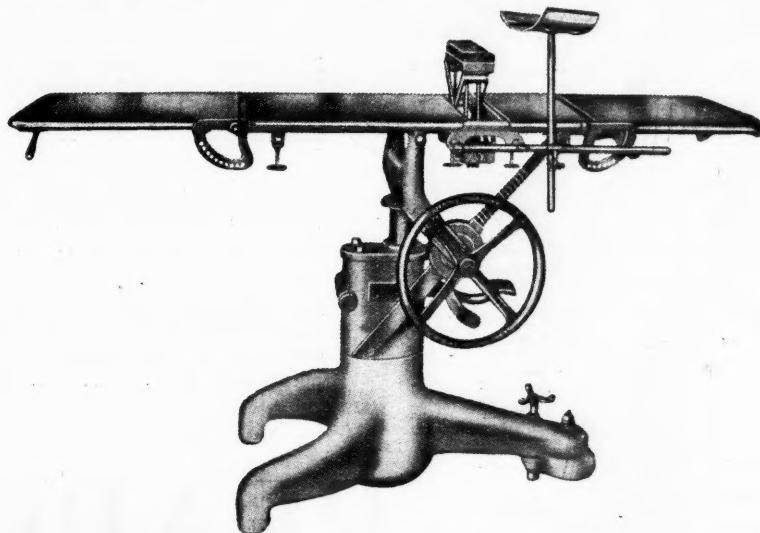
THE  
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OF AUSTRALIA

VOL. II.—16TH YEAR.

SYDNEY, SATURDAY, NOVEMBER 16, 1929.

No. 20.

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## Table of Contents

[The Whole of the Literary Matter in THE MEDICAL JOURNAL OF AUSTRALIA is Copyright.]

<b>ORIGINAL ARTICLES—</b>	PAGE.	<b>BRITISH MEDICAL ASSOCIATION NEWS—</b>	PAGE.
"Ochronosis Due to Carbolic Acid with a Report of a Case," by KEITH D. FAIRLEY, M.D., M.R.C.P.	696	Scientific .. . . . .	720
"Some Notes on a Recent Study of Urology in America," by J. J. POWER, D.S.O., M.B., Ch.M., F.R.C.S.	700	<b>MEDICAL SOCIETIES—</b>	
"The School Child," by LUXFORD MEAGHER, M.B., B.S.	704	The Medical Sciences Club of South Australia ..	727
"Post-Anæsthetic Acidosis," by T. A'B. TRAVERS, M.B., B.S., and E. M. BURT	709	<b>UNIVERSITY INTELLIGENCE—</b>	
<b>REPORTS OF CASES—</b>		The University of Sydney .. . . . .	727
"Two Interesting Abdominal Conditions," by A. E. COATES, M.D., M.S., and O. GREEN, M.B., B.S.	712	<b>CORRESPONDENCE—</b>	
<b>REVIEWS—</b>		Some Principles Affecting the Future of Medical Practice .. . . . .	727
Percussion of the Thorax .. . . . .	713	Twin Pregnancy—Uterine and Tubal .. . . . .	728
An Outline of Medical History .. . . . .	713	Chronic Nephritis in Queensland .. . . . .	728
Normal Sex Life .. . . . .	714	Examination of the Urine .. . . . .	729
A Book on Gonorrhœa .. . . . .	714	<b>NAVAL, MILITARY AND AIR FORCE—</b>	
A Monograph on Chronic Arthritic Conditions ..	714	Appointments .. . . . .	729
<b>LEADING ARTICLES—</b>		<b>PROCEEDINGS OF THE AUSTRALIAN MEDICAL BOARDS—</b>	
The Acquisition of Knowledge .. . . . .	715	Victoria .. . . . .	731
<b>CURRENT COMMENT—</b>		<b>THE TRADE EXHIBITION OF THE AUSTRALASIAN MEDICAL CONGRESS</b> .. . . . .	731
Copper and Anæmia .. . . . .	716	<b>BOOKS RECEIVED</b> .. . . . .	732
The Treatment of <i>Bacillus Coli</i> Pyuria .. . . . .	717	<b>DIARY FOR THE MONTH</b> .. . . . .	732
<b>ABSTRACTS FROM CURRENT MEDICAL LITERATURE—</b>		<b>MEDICAL APPOINTMENTS</b> .. . . . .	732
Neurology .. . . . .	718	<b>MEDICAL APPOINTMENTS VACANT, ETC.</b> .. . . . .	732
Therapeutics .. . . . .	719	<b>MEDICAL APPOINTMENTS: IMPORTANT NOTICE</b> .. . . . .	732
<b>EDITORIAL NOTICES</b> .. . . . .		<b>EDITORIAL NOTICES</b> .. . . . .	732

OCHRONOSIS DUE TO CARBOLIC ACID WITH A  
REPORT OF A CASE.<sup>1</sup>

By KEITH D. FAIRLEY, M.D., M.R.C.P.,  
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Hospital.

OCHRONOSIS is a rare condition, for Scott and Moore<sup>(1)</sup> in 1927 found that only fifty-three cases had been reported since Virchow<sup>(2)</sup> in 1866 described the characteristic discolouration of the cartilages observed at a *post mortem* examination and gave the condition its name. It is known to occur in association with alcaptonuria, with melanuria and with long continued absorption of carbolic acid. Three cases<sup>(1)(3)(4)</sup> in which none of these associated conditions was apparently present, have also been recorded. Many of the earlier reported cases cannot be classified, as the urine was not fully investigated.

Alcaptonuria, an inborn error of metabolism in which there is failure to deal in the normal manner with the aromatic amino-acids, tyrosin and phenylalanin, has been present in more than half of the reported cases. Garrod<sup>(5)</sup> states that almost all, if not all alcaptonurics who reach middle life, develop ochronosis. Poulsen<sup>(6)</sup> recorded its appearance in a patient only twenty-three years old. The essential feature of alcaptonuria is the presence in the urine of homogentisic acid (hydroquinone-ortho-acetic acid). Solutions of this acid show all the reactions of alcapton urine and except for its presence the urine of alcaptonurics is apparently normal.

Melanuria appearing in patients with melanosarcoma is not associated with ochronosis, probably because the duration of life in these cases is too short for the condition to develop. Hecker and Wolf<sup>(7)</sup> reported the occurrence of ochronosis in association with melanuria, while Janney<sup>(8)</sup> in a similar case described by Oppenheimer and Kline<sup>(9)</sup> made a very complete investigation of the pigment isolated from the urine and from a portion of a rib. A trace of iron and more than 5% of sulphur were present in the pigment which in its reactions and composition showed close agreement with the melanin obtained by Mörner<sup>(10)</sup> from the urine and tumour of a patient suffering from melanosarcoma. The tumour melanins are allied to proteins and Janney concluded that the pigment he isolated was of a similar complex nature. It obviously differed from the pigment of simple phenol derivatives such as homogentisic acid and carbolic acid. In this case homogentisic acid was proved to be absent from the urine and there was no history of the application of any preparation of carbolic acid.

Osler<sup>(11)</sup> reported the first two patients (both alcaptonurics) in whom ochronosis was recognized clinically. Heile<sup>(12)</sup> observed this condition in a woman who suffered from a chronic ulcer of the leg, but there is no record of the examination of the

urine nor any reference to the use of carbolic acid. Pope<sup>(13)</sup> detailed the history of the first patient in whom the association of ochronosis with the long continued application of carbolic acid was recognized. A survey of the literature has shown only thirteen similar cases. In every instance the patient for years had applied some preparation of carbolic acid (usually an oil of a strength of 5% carbolic acid) to a chronic ulcer of the leg. These cases are recorded in Table I.

Modern improvements in the treatment of syphilitic and varicose ulcers will probably result in the virtual disappearance of cases of ochronosis due to carbolic acid, but as the clinical features of the condition from any cause are practically identical, the record of another patient who acquired ochronosis in this way may not be without interest.

Report of a Case.

E.B., a widow, aged sixty-four years, came under observation on July 31, 1928. An ulcer had been present on the left leg for twenty-three years and for the past fifteen years it had been dressed twice daily with carbolic oil of 5% strength, about half a litre of the oil being used each week. Ten years ago discolouration of the skin of the lips (as though they were unwashed) was first observed and the pigmentation gradually spread over the face and forehead and appeared on the hands. It seemed to vary a little from time to time and six years ago it became more intense on the face, neck and hands. About this time she suffered from a stroke of sudden onset without loss of consciousness. The left arm was paralysed and there was some slight difficulty with speech, as if the tongue were thickened. The face and leg were apparently unaffected. Recovery was complete in a fortnight.

Three years ago while under treatment for multiple abscesses in the left lower limb, it was observed that the blood pressure was raised, the systolic pressure registering 180 millimetres and the diastolic pressure 105 millimetres of mercury. At this stage the discolouration of the urine was first noted. It was variable, but often in the morning the urine was somewhat dark in colour and this became more obvious if it were left exposed for some time.

The sweat was not pigmented. No symptoms accompanied the pigmentation, but latterly there had been some dyspnoea on moderate exertion and nocturnal frequency of micturition, the urine being passed from two to four times during the night. Otherwise the patient felt perfectly well.

The menopause had occurred seventeen years previously. There was no history of any pigmentary abnormality in the various members of the family.

The walls of the radial artery felt somewhat thickened. The systolic blood pressure varied from 130 to 160 millimetres of mercury, the diastolic pressure from 90 to 100 millimetres. The apex beat was in the fifth costal interspace 11.25 centimetres (four and a half inches) from the mid-line. The heart sounds were clear and regular. Electrocardiography showed the existence of left ventricular preponderance, the T wave in Lead III was inverted, while in Lead II the R wave was of small amplitude with a deep S wave. X ray examination (screening) revealed a widened aortic shadow in the antero-posterior view with a moderate enlargement of the heart shadow both to left and right.

Clinical examination revealed no abnormality in the lungs, abdomen or nervous system nor was any obvious lesion in the lungs detected on radiological examination (screening).

There was no clinical evidence of arthritis in any joints nor was any detected on radiological investigation of the hip, knees and shoulder joints. There was a definite scoliosis of the lumbar spine with sacralization of the right side of the fifth lumbar vertebra and some lipping

<sup>1</sup>This patient was demonstrated at a clinical meeting of the Victorian Branch of the British Medical Association held at the Melbourne Hospital on May 15, 1929.

TABLE I.  
Recorded Cases of Ochronosis due to Carbolic Acid.

Case No.	Author.	Sex.	Age in Years.	Duration of Treatment with Carbolic Acid in Years.	Time Since Pigmentation was First Observed in Years.	Post mortem Examination Performed.	Evidence of Cardio-vascular-renal Disease.	Joints Affected by Arthritis.	Examination of the Urine.			
									Dis-coloration on Standing.	Reaction with Ferric Chloride.	Copper Reducing Substance.	Homo-gentiaic Acid.
1	Pope <sup>(13)</sup>	F.	47	12	5	Yes	†	Small joints of hands.	Present.	Dark brown precipitate.	Absent.	†
2	Pick <sup>(14)</sup>	F.	77	20	16	Yes	Endocarditis, small left kidney.	†	Absent.	†	Absent.	Absent.
3	Graeffner <sup>(15)</sup>	F.	59	15	†	No	Granular and hyaline casts in urine.	†	Absent.	No change.	Absent.	Absent.
4	Reid <sup>(16)</sup>	F.	67	About 30	6	No	†	†	Present	No change.	Present in only one specimen.	Absent.
5	Poulsen <sup>(17)</sup>	F.	63	21	†	Yes	Endocarditis, arteriosclerosis, chronic nephritis.	Absent (little stiffness of one knee joint).	Absent (after months only slight darkening).	No change.	Absent.	†
6	Poulsen	F.	55	22	15 at least	No	Rigid arteries.	Absent (creaking on movement of larger joints).	Present.	Dark brown precipitate.	Absent.	Absent.
7	Poulsen	M.	44	8	More than 4	No	Systolic murmur heard all over praecordium.	Absent.	Absent.	No change.	Absent.	Absent.
8	Beddard <sup>(18)</sup>	F.	50	4·5	1·5	No	†	Absent.	Present.	Slight green colour in one specimen.	Trifling reduction in one specimen.	Absent.
9	Andrews & Branson <sup>(19)</sup>	M.	69	30 (?)	†	Yes	Arteriosclerosis, chronic nephritis.	Apparently absent.	†	†	†	†
10	Beddard & Plumtre <sup>(20)</sup>	M.	73	More than 40	10	Yes	Syphilitic aortitis, arteriosclerosis, chronic nephritis.	Small joints of hands.	Present.	No change.	Absent.	Absent.
11	Vogelius <sup>(21)</sup>	F.	63	3 (also 10 before)	†	No	Convulsions, hemiplegia, paraplegia.	Joints of the toes and both ankles.	Absent.	No properties of carbolic or alcapton urines. carbolic urine.	Ten years before, she had passed	
12	Santee <sup>(22)</sup>	F.	56	20	19	No	†	Absent.	Slight smokiness in one specimen.	Gave none of the reactions for carbolic acid.	Absent.	
13	Goldberg <sup>(23)</sup>	F.	63	Many years	†	Yes	Atherosclerosis of mitral & aortic valves, atheroma of aorta, hydronephrosis secondary to carcinoma of uterus.	Absent.	Absent.	" Examination of the urine gave negative results."		
14	Fairley	F.	64	15	10	No	Arteriosclerosis.	Slight "lipping" of sacro-iliac joints.	Present.	No change.	Absent.	Absent.

† = not recorded.

was present about the lower ends of the sacro-iliac joints. The small joints of the hands showed no signs of arthritis except for very early changes in the joints of the right middle finger.

An ulcer fifteen centimetres (six inches) in length encircled the lower portion of the left leg. The edges were irregular, rather sharply cut and indurated. The base was composed of uneven granulation tissue with scanty pus. The surrounding tissues were indurated and edematous. A few varices were visible in this leg, but more were observed in the opposite limb.

Pigmentation was present in the skin on the exposed parts, while the skin elsewhere was not affected (see coloured plates). On the forehead the colour was a definite brown (a wash of Van Dyke brown) which contrasted with the normal pinkish-white tint of the upper portion which was protected by the hair. The skin of the nose was brown in the upper part, while the tint was bluish around the *alæ nasi* and tip where the colour of the subjacent pigmented cartilage was visible. Over the malar prominences the tint was a bluish-brown. The mucous membrane of the lips was of normal hue, but the skin of the lips and chin was brown. This colour extended over the cheek and down the neck to the level of the clothing and gradually faded off into normal skin. Over the cheeks and neck the pigmentation was interrupted by some white scar-like spots.

The skin of the dorsum of the hands and fingers showed obvious discolouration (Payne's grey) extending also for five centimetres (two inches) above the wrist and gradually fading. The distribution was patchy with normal skin and white scar-like areas interspersed among the pigmented

parts. The palmar surface of the hands showed no pigmentation save for a slight encroachment from the dorsum on the edge of the thenar eminence. The colour was most intense on the sides of the thumb and ulnar aspect of the forearm and between the fingers dorsal to where they became opposed. A slight brownish discolouration was visible on the flexor surface of the lower part of the forearms. A bluish-grey tint was present in the proximal half of the nails, though this varied in different fingers. The pigmentation of the skin, especially of the face, appeared to vary in intensity from day to day.

The lobe of the ear was brownish and the skin of the ear near the cheek was brown. A slaty pigmentation (Payne's grey) was observed in the cartilage of the ear and the same tint was present in the nasal cartilages. The aural cerumen was of a light brown colour.

The eyes showed symmetrical pigmentation of the sclerotics on both sides of the cornea. On the nasal side was a purplish-black vertical bar medially running into a brown patch extending towards the cornea. Minute blood vessels passed over the pigmented area. On the temporal side, the vessels were more obvious over the area of pigmentation, the colour of which was a warm Van Dyke brown with a blend of yellow ochre medially and a less definite purplish-black portion laterally. The *fundi oculorum* showed no abnormality on ophthalmoscopic examination.

A tiny speck of pigment was present on the mucous membrane just at the angle of the mouth on the left side, otherwise no pigmentation of buccal or vaginal mucous membranes was observed. Sigmoidoscopy failed to reveal any abnormal pigment in the mucosa of the lower twenty-seven centimetres of the bowel.

The blood serum failed to react to the Wassermann test. Tests for renal function were carried out in September, 1928, and in May, 1929. On the former occasion the urea concentration test showed 2·0% of urea in the urine obtained at the end of the first and second hours, while thirty-two milligrammes of urea were present per hundred cubic centimetres of blood (MacLean's method). On the latter occasion a maximum urea concentration of 1·55% was found in the third hour specimen, while thirty-nine milligrammes of urea were present per hundred cubic centimetres of blood. With the phenolsulphonphthalein test 54% of the dye was excreted in the first hour and 10% in the second hour.

For a short time after the patient was first admitted to hospital, the ulcer was dressed with applications of carbolic oil, while biochemical investigation of the urine was being carried out. This dressing was soon changed, for with the rapid decrease in size of the ulcer under the influence of rest in bed and the obliteration of the visible varices by intravenous injections of the usual quinine hydrochloride-urethane solution, the urine quickly ceased to show any abnormality. The patient was then allowed to get about with the leg supported by an Unna's stocking. To accelerate matters Mr. A. S. M. Tymms, on December 1, 1928, performed a Thiersch skin graft and the ulcer soon healed completely. On the day of operation the urine was of normal colour, acid in reaction, of a specific gravity of 1020 and contained a trace of albumin. No reduction occurred on boiling with Fehling's solution.

Unfortunately, despite the use of an Unna's stocking, the ulcer soon recurred. Now, in June, 1929, healing is practically complete, but the epidermal covering in places is extremely thin. The patient has been afebrile throughout the time she has been under observation.

In the nine months since the use of carbolic dressings was discontinued, the pigmentation of the skin seems to have decreased, though it is still obvious. As Reid,<sup>(16)</sup> Poulsen<sup>(17)</sup> and Beddard<sup>(18)(19)</sup> reported that the pigmentation in their patients gradually decreased when the use of carbolic acid was stopped, a favourable prognosis on this point has been given. At the present rate of progress it will doubtless take some years for the pigmentation to disappear completely. The duration of life is apparently not appreciably altered by the supervention of ochronosis.

The first specimen of urine obtained showed no abnormal colour on standing for a day nor on the addition of alkali. The specific gravity was 1015, the reaction was acid, albumin was absent and no reduction occurred on boiling with an equal quantity of Fehling's solution. Microscopical examination of an ordinary specimen showed only fairly numerous motile bacilli.

The patient was admitted to hospital on August 14, 1928, the ulcer was dressed with carbolic oil and the urine was collected in twenty-four hour specimens. Biochemical investigation of the urine was undertaken by Miss Splatt.

The first specimen obtained on August 20 was approximately half a litre in quantity, of a specific gravity of 1021, yellow in colour and showing no bands on spectroscopic examination. Albumin and blood were absent, but Rothera's test for acetone and aceto-acetic acid gave a positive result. On standing for twenty-four hours the urine became dark and it was definitely black in forty-eight hours. Even at this time no absorption bands were visible with the spectroscope.

The following tests were carried out on relatively fresh specimens before any obvious colour change occurred. The specimens varied from day to day in the amount of darkening which occurred on exposure. The ulcer rapidly decreased in size and unfortunately in a few days the urine ceased to darken on standing and from this time onwards no abnormality could be detected by chemical tests.

Several specimens were tested by Garrod's method<sup>(20)</sup> for homogentisic acid with uniformly negative results.

On boiling with Fehling's solution the colour became dark green, but no precipitate appeared. With Benedict's test a pale green flocculent precipitate was observed in a pale green solution. An ammoniacal solution of silver nitrate was not reduced.

The addition of a dilute solution of ferric chloride caused a precipitate of phosphates, but no colour change resulted. With bromine water, with barium hydroxide, with lead acetate, with strong nitric acid, with Millon's reagent and with sodium hydroxide and potassium permanganate no abnormal reaction was observed. The addition of potassium bichromate and sulphuric acid resulted in the production of a brown colour, while a normal urine so treated became dark yellow. In the one specimen so tested no reaction followed the passage of a current of air through the urine after the addition of 10% solution of sodium hydroxide. The distillate from one litre of urine which had been acidified with strong hydrochloric acid and steam distilled, gave a transitory blue colour on the addition of a drop of a dilute solution of ferric chloride. On the addition of a few more drops of the reagent, the blue colour became permanent.

#### Results of Tests.

Table I shows the results obtained on testing the urine of patients with ochronosis due to carbolic acid with a dilute solution of ferric chloride and an alkaline solution of a cupric salt. Usually on testing with the latter reagent no reducing substance can be detected. The only exceptions are recorded by Reid<sup>(16)</sup> and Beddard.<sup>(18)</sup> Both observers obtained only one specimen which was discoloured, from each of their respective patients. Reid states that though this specimen reduced Fehling's solution, daily examination of the urine for the next five months invariably showed it to be of normal colour, while no reduction of Fehling's solution was ever observed. Beddard found that a trifling reduction of this reagent occurred on boiling with the discoloured sample of urine, but subsequent specimens showed no abnormal colour nor any reduction of Fehling's solution.

In only three of the recorded cases has any colour change been observed on the addition of a dilute solution of ferric chloride to the urine. In Pope's<sup>(13)</sup> case and in one recorded by Poulsen<sup>(17)</sup> a dark brown precipitate resulted, while in Beddard's case the first specimen showed a slight green colour, though subsequent specimens underwent no colour change.

Patients who noted the presence of discoloration of the urine, all stated that the colour varied in different specimens, a urine of normal colour usually being passed more frequently than a discoloured one. All observers have stressed the rapidity of the disappearance of the abnormal colour of the urine when the patient was under treatment, even when carbolic acid applications were continued. It is therefore difficult to make a complete investigation of the abnormal substance excreted in the urine.

From the urine of patients with alcaptonuria, homogentisic acid can be isolated. The urine reduces Fehling's solution, the deep brown colour developing along with a copious orange precipitate being rather characteristic. No fermentation occurs with yeast. The addition to the urine of a drop of a dilute solution of ferric chloride results in the momentary appearance of a deep blue colour which recurs with subsequent additions of the reagent until oxidation is complete.

In cases of melanuria the addition of this reagent to the urine usually results in the immediate appearance of a black colour. In the case of ochronosis with melanuria investigated by Janney<sup>(8)</sup> a reducing substance was present in the urine. No fermentation occurred with yeast. The addition of ferric chloride led to the production of a transitory green colour. Homogentisic acid was not present in the urine.

#### Pathology.

The *post mortem* appearances in ochronosis due to any cause are practically identical. The chief characteristic is the selective brown or black staining of the tissues, especially the cartilages and fibrocartilages, as is well seen in the tracheal rings, the costal and articular cartilages and the intervertebral discs. Fibrous tissues such as tendons, periosteum, perichondrium and joint capsules are less intensely pigmented. Even the bones may be tinted. The pigmentation of the skin and the sclerotics has been described in the present case. Elsewhere the pigment is usually seen only in the endocardium, in the intima of the larger arteries where there is some atheromatous change and in the kidneys. It has been reported in prostatic concretions, in the connective tissue of the lungs and thyroid and in the *dura mater*.

In cartilage the granular or diffuse pigment is deposited chiefly in the matrix and in degenerated cells. In the skin it is located in the connective tissue bundles of the corium well beneath the cells of the *rete malpighii* in which the normal pigment of coloured races and the pigment of Addison's disease are found.

#### Complications.

Alcaptonurics with ochronosis seem to have a special liability to develop osteoarthritis of the larger joints and the spine. Apparently this does not apply to patients with ochronosis due to carbolic acid (see Table I) possibly, as Garrod<sup>(5)</sup> suggests, because in them the cause has usually acted for a much shorter period.

Beddard<sup>(18)</sup> called special attention to the frequency with which chronic cardio-vascular disease occurred in patients with ochronosis and suggested that such disease might interfere with renal excretion and so lead to a retention in the body of aromatic substances which might be deposited as ochronotic pigment. It would be expected that these bodies would normally be excreted in the urine. That cardio-vascular and renal disease are common in cases due to carbolic acid is shown in Table I. However, the average age of these patients is over sixty years and degenerative changes in these systems are common at this age. The average duration of the pigmentation, where this was recorded, was over ten years in three patients who died while under observation, and over nine years in six who were alive when their reports were published. The failure of renal function at the time the

pigmentation appeared could thus hardly have been gross.

#### Diagnosis.

The diagnosis of ochronosis can usually be made on sight. In every case due to carbolic acid the bluish colour of the cartilages of the ears and the dark pigmentation of the sclerotics have been obvious. In nearly every instance the nasal cartilages and the skin of the exposed parts have also been pigmented. In about half the cases the urine has been observed to darken on exposure to the air. The extensor tendons of the hands and feet may also be pigmented, while the fibrous tissue about the small joints is often of a slaty hue, well shown in the knuckles on making a fist.

In alcaptonurics the darkening of the urine has usually been observed very early in life on account of the characteristic staining of the linen. Confirmation of the diagnosis is obtained by the isolation of homogentisic acid in the urine.

In cases due to carbolic acid there is invariably a history of the prolonged application of this substance to broken skin and homogentisic acid is absent from the urine.

In the case of ochronosis associated with melanuria urinary analysis will confirm the diagnosis. There is no history of the use of carbolic acid.

In a few patients with ochronosis no abnormality whatever has been detected in the urine and the aetiological factor in these cases is unknown.

#### Pathogenesis.

In a dog and in a calf Gross<sup>(25)</sup> failed to produce ochronosis by the injection of phenol daily for one year.

Homogentisic acid, if slowly oxidized *in vitro*, yields a black pigment and the pigmentation of the tissues of alcaptonurics is probably due to a similar process. Some of the aromatic oxyacids formed *in vivo* from phenol, for example, hydroquinone, are closely related to homogentisic acid (hydroquinone acetic acid) and yield a similar pigment when oxidized *in vitro*. Pick's<sup>(14)</sup> view that ochronotic pigment was formed in the tissues by ferment acting on tyrosin and homogentisic acid in alcaptonurics and on the aromatic oxyacids derived from phenol in cases due to carbolic acid is generally accepted. Garrod<sup>(5)</sup> agrees that the selective character of the staining may be due to the presence of such an enzyme in the selected tissues. Abderhalden and Guggenheim<sup>(26)</sup> found that simple phenol compounds, tyrosin and homogentisic acid were converted by the ferment tyrosinase into a melanin pigment. As mentioned previously, Beddard<sup>(18)</sup> suggested that interference with renal excretion probably played a part in the development of ochronosis.

#### Acknowledgement.

I am greatly indebted to Miss Beryl Splatt who carried out for me the biochemical investigations described.

## References.

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SOME NOTES ON A RECENT STUDY OF UROLOGY IN AMERICA.<sup>1</sup>

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As the result of a recent trip to America to study urology I saw very much that was of extreme interest and benefit, and it was surprising before leaving Australia how little information one could get, especially about the work as carried out at the New York Post-graduate Hospital and Medical School. Here, I think, the seeker after knowledge gets most benefit, although at the other centres, to which I will refer later, certain special work appealed to one more.

At the department of urology associated with the New York Post-graduate Medical School there are three courses in urology held each year. The first is a six months' course which commences in January, and two are courses of three months commencing in July and October. The director of the department is Professor Joseph F. McCarthy, with twenty-four on the teaching staff, the working hours being from nine to five for six days a week. They are not quite so generous with time as we are, refusing to waste the Saturday afternoon in some more restful way, the argument being that they would not like to ask medical men attending the course to waste a day and a half a week.

Here one has the opportunity of actually doing the work which is not the case at any other centre that I visited. The major part of the time is devoted to cystoscopy and a very thorough course in blood chemistry. This department is in the charge of Professor John A. Killian, a considerable amount of work being done on the pre-operative and post-operative care of the prostatectomy patient.

The arrangement of the department is as follows. In the basement of the building is the outdoor department. A major portion of the work is concerned with venereal diseases which, I might add, in America seems to me to be part and parcel of the urological department and most likely the bread and butter line for all young urologists. Later on, of course, the senior men employ assistants to take over this work. The outdoor department serves as a clearing station for patients requiring further investigation, such as cystoscopy, X ray examination et cetera.

Practically the whole of one floor is occupied by the urological department which comprises wards, X ray room with Young cystoscopic table and a large room subdivided by screens into three small departments each with a cystoscopic table in it. Round practically the whole of this room are view boxes, each box with slides illustrating certain pathological conditions or the various stages of some operative procedure and also a box for the X ray films. Here a daily talk of about twenty minutes

<sup>1</sup> Read at a meeting of the Queensland Branch of the British Medical Association on July 5, 1929.

takes place and normal and abnormal cystograms, ureterograms and pyelograms are studied.

There always seems to be ample material available for cystoscopic work and, as one would imply from the name of the director, the instruments used are the McCarthy cysto-urethroscopes and fore-oblique panendoscope. Routine work such as ureteral catheterization and dilatation, diathermy (surgical) *et cetera*, is here carried out as well as the dye function tests.

For urographic work the patients are sent to another room specially set aside for the purpose and in the matter of convenience we must remember what a boon this is to the visiting surgeons, since here all the paying and non-paying patients are attended to. The American system has a distinct advantage over our system of hospitalization. All classes of patients are housed under the one roof and thus X ray and pathological investigation *et cetera* can be carried out on the premises. In addition there is always an efficient resident staff for urgent work, men perhaps partially specialized in certain lines. Two of them appealed to me greatly, first, the blood transfusionist and, secondly, the expert in various forms of local and regional anaesthesia. In passing I should like to refer to Professor Lester J. Unger who does the blood transfusions. He has a most ingenious apparatus which I have with me and which is here for inspection. It eliminates the necessity for citrate solution. The question of anaesthesia I will discuss more fully later.

The ward was in no way specially fitted up, except for the water suction apparatus. In the dressing room at the end of the ward was a water pipe and attached to it several stop cocks, each one numbered to correspond to the numbers on the beds in the ward and connected accordingly. By turning on the corresponding stop cock a water suction could be arranged for any bed. I am not prepared to say that the amount of water used did not outweigh the advantages, but there was certainly no ammoniacal odour.

Excellent as was the department of urology, Professor Albee went one better in the orthopaedic theatre where he had a motion picture illustrating the various steps as he was operating—an excellent idea, since where the crowd was so great, only a few could see what was actually being done. The operating theatres were small, except for two, as no student accommodation was necessary, the work being viewed by graduates only. The surgeons were always very careful to explain and if possible demonstrate the details of all work.

On the floor above is situated the biochemical laboratory and pathological department. This work is part of the urological course, but it is also run independently of it and technicians are here trained and later employed in various public and private laboratories throughout the country.

In the basement is also situated the anatomical department and here again the attention to detail

is noticed. An opportunity is afforded everyone of carrying out all operations of importance on the cadaver and the instructors are equipped with lantern slides and diagrams so as to simplify their talks.

Of course the show place in New York is the medical centre. The urological section is known as the Squire Clinic, being the teaching centre for the Columbia University. The official opening took place while I was there and one can imagine the size of the place when one realizes that up to that time they had spent 80,000,000 dollars and the good work was still going on with, I understand, ample funds in hand.

The Bellevue and the New York Hospitals were the other places I visited, but there was nothing very special to refer to in connexion with the work there.

I decided to make the Brady Urological Clinic at Baltimore my next port of call and here, as you all know, Hugh Hampton Young is in charge. He is the great advocate of perineal prostatectomy and is also rather an enthusiast for the radium treatment of malignant disease of the prostate. When one sees him perform a perineal prostatectomy one can easily understand why he is such an advocate, as he is certainly a master surgeon and not only does he display every anatomical structure, but later when the work is completed he goes to the trouble to sketch the various stages of his operation and fully explain them. Visitors seem to be given the box seat during the procedure.

Although he is doing a good deal of work on cancer of the prostate with radium and deep X ray therapy, he is not very extravagant in his claims. He considers radium more beneficial than X rays, but thinks that all available ammunition should be used when attacking such a problem. He applies the radium through the prostatic urethra and rectum alternately, using one hundred milligrammes for short periods and this is held in position by a mechanical hand. While there I had the good fortune to see him treating a patient. Although he had secondary growths in the pelvic bones, the patient was very free from bladder symptoms, the primary growth being very much smaller than before treatment was commenced. Young claims no cures, although he has had under observation for four or five years some patients apparently free from trouble; this is certainly a very honest expression of opinion.

In charge of the laboratory is Dr. Hill who, I understand, with Dr. White is responsible for mercurochrome, used locally in acute and chronic infections of the urinary system and also as a skin preparation, as it causes no irritation like iodine. It is also very popular at the Mayo Clinic. It is used in abdominal work for swabbing over the stomach and intestines and is given intravenously in very dilute strength for acute genito-urinary infections, but not in chronic infections.

The Mayo Clinic next claims attention and what a revelation it is. There are four hundred and fifty doctors at the clinic and they see up to six hundred new patients a day. The fairy godmother here is Miss Ana Edmondston who has been private secretary to Dr. Charles Mayo for about twenty years. Her main anxiety is to see that visitors miss nothing and I think Australians and New Zealanders claim her very special attention.

Each morning with your breakfast you get a programme of events for the day and breakfast must be an early meal, as operations commence at 8 o'clock. Our meeting time was 8.15 in the urological wards, at that time under Dr. Harry Hager. The section here seemed to be made up of several departments. In the first cystoscopic and X ray work of a diagnostic character is carried out, normally under Dr. Braasch, but at this time under Dr. Krenshaw. The cystoscopic treatment rooms and wards are under Dr. Hager. The venereal section and department where much research work was being done in connexion with specific and non-specific prostatitis, is under Dr. von Lackum. When the patients were ready for the major operations, they were handed over to the surgical staff and Dr. Verne C. Hunt at this time was doing most of this work. The prostatic work appealed to me very much. Here it is laid down that the important indications for prostatectomy are inability to empty the bladder and persisting residual urine. As the result of experience they treat all prostatic patients with an indwelling catheter for at least ten days before operation. There are very few who will not tolerate the catheter. The reason for this step was that the operative mortality was as high among some of the patients who seemed suitable for operation and who were not so treated, as among those whose condition was bad and who had an indwelling catheter.

Pre-operative treatment and accurately visualized operative procedures Hunt considers are the factors responsible for their very low mortality rate.

They now prepare a cystogram in all cases. They use 5% silver iodide. The reason for this step is that indifferent results in some instances were due to undetected diverticula. For the pyelographic work 12.5% sodium iodide solution is used.

The important factor, then, in preliminary treatment is an indwelling catheter and not intermittent catheterization. The small percentage of patients who will not tolerate the indwelling catheter or who do not improve under this régime, has a suprapubic cystostomy performed. In patients suffering from diabetes or other lowering condition the catheter is left in for twelve hours only, say at night, the aim of the drainage being to allow recovery of renal function and stabilization of cardio-vascular renal reserve. While the drainage is being carried out, fluids by mouth are being forced. Here they stipulate for at least three and a half to four thousand cubic centimetres in twenty-four hours. The amount of urine passed is carefully estimated and, unless

the bladder is infected, lavage is not carried out as a routine, but only sufficiently to keep the catheter clean. At several of the other clinics bladder lavage, either once or twice, was the order of the day and the use of mercurochrome was favoured. Drainage is maintained until the tests for renal function have become stabilized within normal limits, but if the phenol-sulphonephthalein return is less than 20% or the urea content of the blood more than fifty milligrammes per hundred cubic centimetres, then prostatectomy should be done only under unusual circumstances. If after fourteen days of catheter drainage the blood urea is fifty milligrammes or over, if kidney function is unsatisfactory or if the patient is running a temperature, then a suprapubic cystostomy is carried out. After this there is very often an immediate improvement. I was fortunate enough to see some patients illustrating this point. From the foregoing one will see that suprapubic prostatectomy is performed in one stage in the great majority of cases—about 75%.

Hunt's prostatectomy is a very pretty procedure and for the benefit of those who do not know it, I will describe the operation in detail.

Regional anaesthesia is carried out before the patient is brought to the operating theatre, paraspinal and caudal blocking for anaesthesia of the bladder and field block for the suprapubic incision. This acted perfectly in all cases that I saw. The patient is then placed in the exaggerated Trendelenburg position and the bladder is widely opened with a mid-line suprapubic incision. Four retractors are placed in the bladder and an excellent view is obtained of the prostatic region, impossible, of course, in very obese patients. The mucous membrane around the internal urethral orifice or that overlying the intravesical portion of the gland, is incised with scissors, the line of cleavage of the adenoma is established in the antero-lateral wall of the prostatic urethra and the adenoma is grasped in a special prostatic forceps. The enucleation is proceeded with, a blunt dissector being used for the purpose, anteriorly and laterally. For the first time the finger is then introduced and the gland freed posteriorly. The risk of damage to the rectum is too great if an instrument is introduced posteriorly.

After the gland has been removed, the irregular tags of mucous membrane are excised and then the very important step of haemostasis claims attention, for this is a prime factor in the immediate operative mortality. Bleeding from the vesical neck is controlled by interrupted sutures, several of which are inserted, the main ones, of course, being at the four and eight o'clock positions. After this Pilcher's modification of the Hagner bag is placed in the prostatic bed, the bag being held in position attached to the Hamer tripod. In four hours the tension is removed from the triangle, in twelve hours some water is let out of the bag and if there is no bleeding in twenty-four hours, the bag is removed. In seven days the suprapubic drain is removed and smaller drainage tubes are put in, the whole being discarded

in fourteen days. If urine is not passed normally *per urethram* in twenty-one days, a catheter is introduced. Prostatectomy patients are out of bed on the morning of the third day. The bladder is not washed out.

Here there is no special attempt made to eliminate the possibility of epididymitis, but at the Brady Clinic at Baltimore the *vas* is always ligated before treatment with the indwelling catheter is commenced. It is performed by injecting a little local anaesthetic over the cord just below the external abdominal ring and after being identified, the *vas* is held in Allis's forceps and ligated.

The mortality rate at the Mayo Clinic for the five year period from January, 1921, to January, 1926, was 4·2%. The figures since, I understand, have been better in view of the preoperative treatment being carried out on all patients. Previous to 1925 only 75% of the patients were treated.

Each morning at the Mayo Clinic when the ward and the cystoscopic work was complete, all those specially interested in urology met in a lecture hall and all the X ray work of the day was there gone through and the cases discussed and diagnosis was made where possible.

A very vexed question for the urologist is the treatment of stone in the ureter. Dr. Hager's procedure was to pass, if possible, three catheters up the ureter beyond the stone, leave them in for twenty-four to forty-eight hours, then inject five cubic centimetres of olive oil. After this possibly the stone will pass. On occasions an attempt has been made to dislodge the stone by twisting the catheters around it and then withdrawing. This is a dangerous procedure and may cause impaction requiring immediate operation.

I should like just briefly to refer to punch prostatectomy. A certain group of patients presents the usual symptoms of prostatic hypertrophy, out of all proportion to the enlargement felt on rectal examination. Cystoscopy will very often reveal a bar formation at the neck of the bladder, due to inflammatory changes in the mucosa and underlying prostatic tissue, an atrophic and not a hyperplastic process.

The major operation of complete prostatectomy should give place to the punch operation in these circumstances, especially when it can now be done under direct vision, and so eliminate the danger of injury to the base of the bladder and trigone.

Since 1924 at the Mayo Clinic the ratio of punch operations to perineal and suprapubic prostatectomies is one to six.

The McCarthy punch gives an excellent vision of the operative field which with running water is kept free of blood, and the operation is completed by applying diathermy to the raw area and draining the bladder with a large indwelling urethral catheter.

It is generally conceded that the operation should not be done for prostatic adenoma, but in certain

cases of malignant disease it offers another field of usefulness.

As already mentioned, for tests of kidney function they rely on blood chemistry, urea nitrogen and the indigo carmine and phenol-sulphonephthalein tests are used.

Chicago was the next place at which I called a halt. Here on arrival one registers at the office of the *Clinical Bulletin* of Chicago, a journal issued by the Chicago Chapter of the Fellows of the American College of Surgeons. One is presented with a real medical encyclopaedia of the hospitals, clinics and all matters relative to medicine and surgery. This is followed by the daily issue of the bulletin, sent by special delivery, so that one gets it in the evening. This is very important as it is then possible to make arrangements to attend the hospitals at zero hour on the following morning, usually 8 a.m.

For urological work I found the clinic at the Presbyterian Hospital, under Dr. Herman L. Kretschmer, most interesting, although for material the Cook County Hospital, with its three thousand five hundred beds, holds pride of place. The work here was much the same as I had already seen and to describe it would be only a matter of repetition. It is of interest to state that in one ward at the Cook County Hospital they had eight patients with extravasation of urine, mostly young people, and the condition was secondary to stricture.

A visit was next made to the famous Cleveland Clinic, better known in this country, I think, as the Crile Clinic, unfortunately the scene of the recent disaster.

Naturally, while here I saw Dr. Crile at work. He had quite an easy morning's work, only six patients for thyroideectomy. From four he removed both lobes and the whole performance had concluded by half past ten o'clock. One can certainly say the morning's work was easy, seeing that he has done as many as forty-five goitre operations in a morning and up to twenty is by no means unusual. Up to the time I was there he had had 500 consecutive operations without a death, his record now standing at over 19,000 operations.

Dr. Lower is senior urologist and one of his specialties is his prostatectomy. A urethral catheter, carrying a balloon so arranged that it fits in the prostatic cavity, is inserted and the suprapubic wound closed, the bladder is irrigated every couple of hours to prevent blood clot forming and the pressure is kept up for twenty-four hours, if no bleeding occurs this catheter is removed and another is inserted.

I should like to refer again to the anaesthesia, as used in urological work.

The method at the Mayo Clinic has already been described.

At Young's Clinic where the work is largely perineal, the simple method of caudal anaesthesia is carried out.

In New York spinal anaesthesia is very popular, by the use of a preparation called "Spinocain."

Nearly all patients at the Bellevue Hospital with kidney, ureter and bladder conditions are treated in this way.

With this solution there is an absence of shock and prolonged anaesthesia for at least sixty minutes is possible. This method appealed to me very much, as it seemed very safe and is far simpler to carry out than the various methods of field block.

"Spinocain" is a Metz product, made according to the formula of Dr. George P. Pitkin. The first injection, given subcutaneously at the site of the spinal puncture, consists of one cubic centimetre of 5% ephedrin and 1% "Novocain" solution. Then two cubic centimetres are given intrathecally, each ampoule containing two hundred milligrammes of "Novocain" and 2.2 milligrammes of strychnine sulphate in a special solvent.

When inhalation anaesthesia is used, ethylene is the popular method.

The work was full of interest and the medical men at the various centres did all in their power to see that the visitor spent his time both profitably and pleasantly. Where my stay was limited, however, there was not enough time to enjoy the feast available.

#### THE SCHOOL CHILD.<sup>1</sup>

By LUXFORD MEAGHER, M.B., B.S. (Melbourne),  
Melbourne.

SCHOOL years are a special age in the life of the child. The mother parts with her son; he leaves the protection of home. For the first time he matches himself against others as well as against his problems. New psychological as well as physical factors affect him. Now is the time when the protection of an elder brother is of special importance. Lenience and nurture are his two especial needs; lenience because an extra strain is imposed upon him. He is paying with his nervous system for his new experiences. He may not now be so prompt to obey, so good tempered. He may be irritable, burdened with work, fearful of his companions or teachers, meeting with menaces from other boys or ruffians in the street. It is not as though his mother could take him to school; she is far too busy for that. It is possible, though, and advisable for the home to be reasonably near the school. By reasonably near, I mean from half to one mile. For little fellows this is too far; the nearer the home to the school, the less strain on the child, for to do his work is enough—often more than enough. He may not tell all his worries to his mother or tell them at once.

School life may be divided into three parts—the beginning, the middle and the end. It is with the second of these periods we have mainly to deal. We meet the boy of this second period in a hospital outpatient department. He has fought his first battles

actually, probably with his fists, as well as figuratively. He has fought many infections; he has succumbed to one, perhaps it is the tonsils or he is a victim to worms.

Two functions largely occupy his life at this period—growth and the assimilation of knowledge.

#### Food.

To meet this new strain of worry and to enable him to sustain new mental effort, good, even better nourishment than he has had, and more, is absolutely necessary. He needs more food to increase his resistance to infection; this is a new danger in his life. At no other period of life does this double activity of work and growth proceed with such vigour. His requirements in food will be as much certainly as for an adult, more probably. In the matter of amount he will be a law to himself. His consumption will vary according to his activities, for his taste has not been spoiled by the caprices of adult life, nor his digestion injured by excess or abuse. For him breakfast is by far the most important meal of the day. It should consist of natural foods, oatmeal porridge, for example, milk, fresh milk from the cow, bread, and butter, eggs, bacon, fish. He should be called in time to take his meal without hurrying. A discipline which he might as well learn now, is to finish it with some time to spare.

Parents should not allow the tyranny of school attendance to embarrass him with an ill digested meal. It would be wise to prescribe some simple duty, such as the cleaning of his boots or, say, five minutes given to the preparation of a lesson, between the time of finishing his breakfast and setting out for school.

The boy needs for lunch stimulant foods rather than a supply for a heavy task. All boys should come home for mid-day meal. The practice of taking lunch packets to school has evil results in predisposing to indigestion. The boy eats while he runs; he gulps his sandwiches to chase a football or take his part in a game of marbles.

This meal at home in the winter time may well consist of soup, meat and vegetables, preferably boiled. The boy will be content with water to drink, if he is trained to it. In the summer milk and fruit and bread and butter, if he wishes, or a piece of home made plain cake will be sufficient. At night time in Australia he will sit down to meal with his parents and may have anything he pleases with them and must have enough.

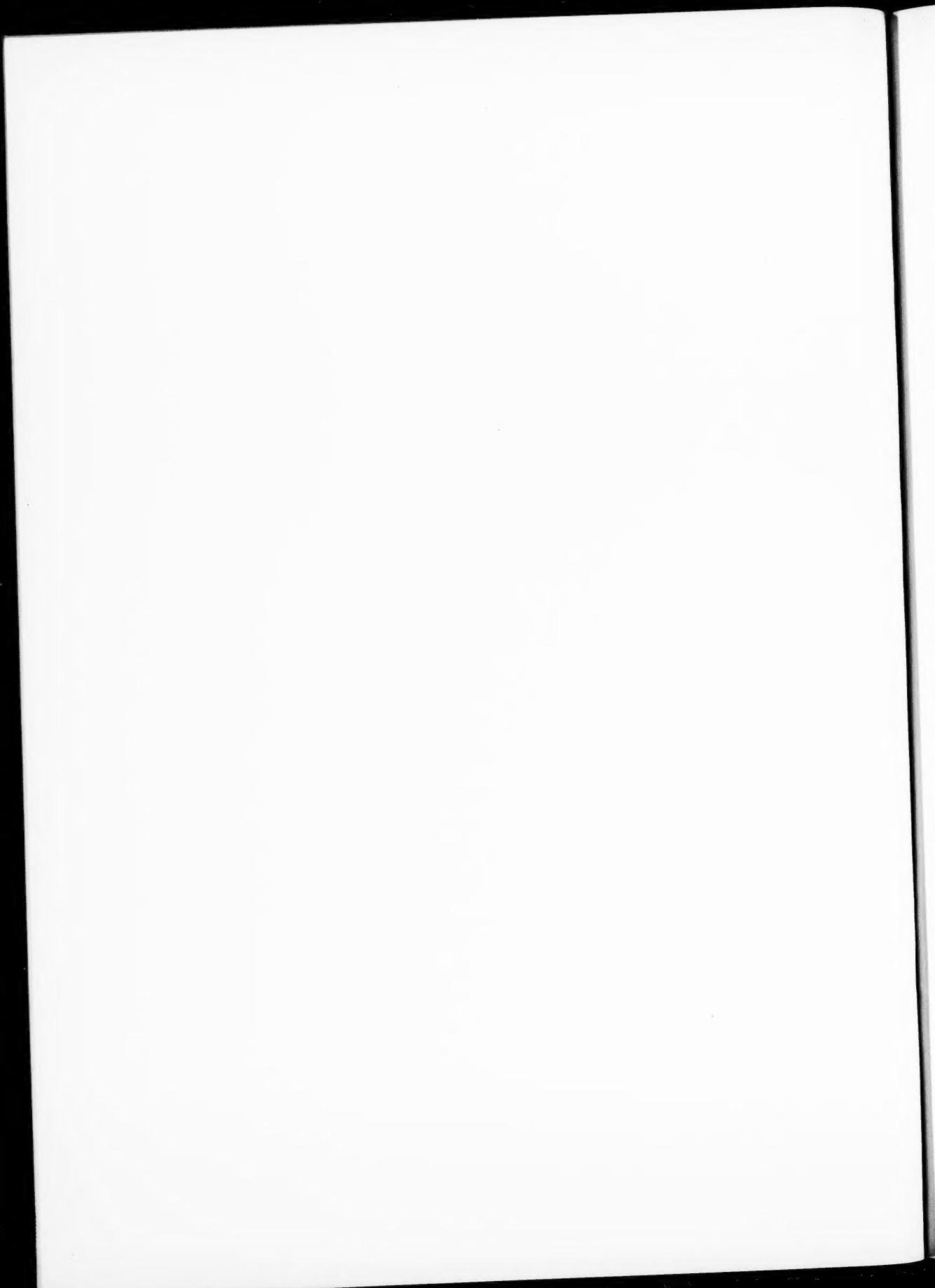
Articles of food he ought not to have are pastry, pies from outside the home (if mother is a good cook he may indulge in these and any other products of her art), condiments (with the exception of salt), pickles, sauces, shell fish, tinned foods. Salads in summer time he may have, without the fiery ingredients that sting the palates of his elders.

Of the prepared breakfast cereals it may be said that they are all inferior to porridge; they necessarily lose some of their life-sustaining qualities in

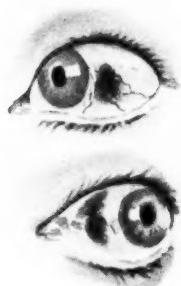
<sup>1</sup> Read in part at a meeting of the Mothers' Club, North Melbourne State School, on October 28, 1928.

ILLUSTRATIONS TO DR. KEITH D. FAIRLEY'S ARTICLE.





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the process of manufacture; also they are more expensive.

I am thoroughly in favour of the "piece" in the afternoon; there should be no stint, a big round of the loaf thickly buttered, if the boy desires it, should be given him. When he asks for a "piece" he is certainly hungry. I believe children in wealthier social circles demand afternoon tea. If their parents wish to be unkind, they will accede to the request.

Fruit should be given at the meals, not before them or between.

A few examples of the errors made by parents in regard to food and the ills consequent upon them may be instructive.

A girl of twelve years of age was brought to me in the out-patient department at the Children's Hospital. Unhappy-looking, with the blue look one often sees in children suffering from an overloading of the intestines, she suffered from pain in the stomach which sometimes waked her. Her mother told me what her meals consisted of and what she had had for tea the night before. "That was all you had, wasn't it?" she asked the child. "Oh, you did have a banana, didn't you?" "Yes, mother, I had four before tea," replied the child.

One mother told me she gave her children condensed milk and water to drink for breakfast; they had grown to like it, probably because it is sweet, but its sweetness vitiates the palate and in nutritive qualities it is not to be compared with milk.

One little pale-faced fellow of seven or eight confessed to a partiality for tea and toast for his breakfast.

Allowance should be made by the mother for individual tastes of her children within limits. Some children cannot take eggs without becoming sick; others by reason of defective teeth cannot eat much meat.

The food suitable for the school child is dairy produce, milk, butter and eggs, fresh meat, mutton and beef, but not pork which is too fatty. Cereal dishes, such as sago, rice, tapioca, semolina, are suitable. These should always be cooked with milk. They are preferable to every other class of sweet because they are by their constitution and method of cooking easily digestible and also because they form what is called a concentrated food, that is, a food which contains bulk for bulk more nutriment than other varieties of food.

Of drinks milk is by far the best. Cocoa comes next, tea and coffee are permissible only because custom ordains them for the boy's elders and he must have them at times. They are so badly made in most homes that they cannot be said to be good for him.

Patent milks or other powders which can be made into drinks, are to be avoided. Only fresh food and the best of it should be given to the school boy. To give him a custard made from an egg substitute is to commit a fraud upon him unless there is nothing better in the house.

Jam he does not need, except to give his meals variety and as an occasional treat. He is worthy

of honey and if it is to be had, he should have it, according to the good sense of his mother.

He requires nothing going to bed.

#### Clothing.

Next in importance to food for the well being of the boy comes clothing. Most important are the boots. They should be strong enough for all weather, all usages. Well-fed, well-shod, the boy will withstand every hardship. He has not the good sense to understand this; he is too careless, too happy, too strong to bother about his boots, to keep out of the wet, to change boots and socks if they are wet. He steps deliberately into the puddles. He does not care if his soles are worn through or if the uppers are bursting. This oversight must be the task of mother and father. Damp, wet feet lower the vitality more than any other hygienic fault; the entry of rheumatism is thus made easy. The soles should be thick and the uppers well sewn. If the boots are wet, they should be changed immediately the boy enters the home on returning from school and placed before the fire to dry.

Clothes should be light and comfortable, flannel or woollen underclothing should be worn in winter time and cotton garments in the summer. A common fault of zealous mothers is over clothing; particularly is this fault manifest when the child has caught a cold. Little boys are brought to the hospital stuffed up with a cold, wearing two flannel singlets, a shirt, a sweater, a coat and an overcoat. The effect of this is to check perspiration, one of the natural channels of excretion of poisons from the system, to make the skin hot and uncomfortable, to maintain the temperature and to predispose to a dirty condition of the skin. A far better plan would be to administer a purgative and to leave the child clothed as he is. The small amount of clothing the healthy child can do with is remarkable. He will readily make known his needs in this respect.

The underclothing is of primary importance. Owing to the uncertain nature of the Melbourne climate a wise provision is to have the garments always somewhat thicker than is necessary. The outer garments are of less importance and may be left to look after themselves. Under garments should always be of a size slightly larger than that which is close fitting. This allows for ventilation of the skin and is a safeguard against the irritation and discomfort produced by perspiration-sodden clothes after the boy has been playing in a school game. Braces confine the shoulder movements and their bad adjustment causes often too great a tightness in the crutch. The boy is a proud being; often his trousers are hitched absurdly high and he endures agonies of confinement about his private parts in consequence. The belt is a much more rational appurtenance of dress. Australian mothers may well profit in the matter of clothing by the example of mothers from the Old Country. Their wisdom is especially evident in the matter of the children's footgear. As a rule, too, their children

are better, more warmly, comfortably and sensibly clad than are Australian children.

#### **Hygiene.**

We come to what we call hygiene. We may for convenience call it "cleanliness." It means teaching the boy to be scrupulous in his personal habits, to keep his body clean for his own sake and the sake of others. This must be taught by example in the home. It means keeping the body clean by a weekly warm bath and by a daily cold bath, if the child's health will permit it. It means brushing the teeth after each meal, with a tooth brush and tooth paste or powder or, failing these, with ordinary household soap. It means having a tooth brush of his own. It means keeping the finger nails clean and a pride in seeing that the clothing is not soiled with urine.

It means using a handkerchief, especially when the boy is suffering from a cold; it means sneezing, if he must, into the handkerchief or with his head bent towards the floor, rather than upon his school books or upon his neighbour's shoulder. It means combing the hair and washing the hands when he remembers it. It means giving up the habit of spitting and avoiding masturbation.

All this he cannot be expected to do without the encouragement, example and assistance of his parents and their wise and kind understanding of his restlessness and impatience which make him look upon some of these things as small matters. He cannot do it all himself. Everything in this matter, so to speak, is against him, for he tends to follow the example of those about him. To pick clean companions for him is a great step. If he wishes to know why he must do many of these irksome and time-consuming things, it must be explained to him that it is because his body is an individual possession, not absolutely of course, but his own, so to speak, on a life's lease and that to make it, such as it is, serve him to develop his personality in the best way is one of his tasks in life.

It is a fact that of all their bodily possessions boys are least proud of their teeth. It is perhaps because they are hidden or largely so. To neglect the teeth—in this connexion meaning to neglect brushing them after each meal—is to pave the way to 50% of all the illness which troubles the life of the school boy.

#### *The School Bag.*

Under the heading of hygiene, too, comes the question of school books. Very often the school boy, like a poor little camel, is loaded with a burden of school books too heavy for him to bear. Tired out, slow, irritable, exhausted by the summer heat, he sinks down under the weight of his bag on some vacant allotment on his way to school. Pride and the fear of being laughed at by his companions prevent him from protesting vigorously; the bag, a school boy's honourable burden, becomes his cross. Of all the school boy's burdens this is the most unreasonable. At the moment when he should be

able to fly like the wind, he is weighed down. He arrives at school dispirited, tired at the beginning of a day which by its necessary exertions will tax him to the utmost.

#### **Spiritual Training.**

A word about spiritual training. This must be undertaken by his parents and his pastor, but its necessity is undoubted if he is to get the best out of his school life.

#### **Sleep.**

It can readily be understood that in order to sustain the enormous activity which occurs in the school years, an exceptional amount of sleep is necessary. There should be no limit to it, except the boy's knowledge of what he needs. Among the number of normal boys, the lazy boy, the slug-a-bed, exists only in fiction or in those homes in which he has not been taught by wise precept to be interested in a sufficient number of things.

No boy stays in bed for pleasure. To be up and doing is his life. If he stays in bed, it is because he needs sleep or is not well. Eight and nine, even ten hours may not be enough. It is best for the boy to sleep out of doors and he should do so in all seasons of the year, if his sleeping space can be protected from wind and rain. A sleeping apartment should be well ventilated, the windows open from top and bottom, the number of children sleeping in a room reduced to the smallest number and, if necessary, a sofa in one of the living rooms should be utilized. Where several children are sleeping in separate beds in the same room, a space of at least two feet should separate the beds. The children should not be permitted to drink tea before going to bed and they should be trained to empty their bladders before lying down. I am convinced that one of the most important factors in the production of adenoids and hypertrophied tonsils is the vitiated atmosphere of sleeping apartments.

#### **Infection.**

It is a strange thing that the school child should be subject to infections ranging from those of slight consequence like a common cold to grave ones like scarlet fever or infantile paralysis. The careful mother will take precautions to guard her child against these. I take it that this, as much as anything else, is the advice which members of the Mothers' Club expect from me today. I can tell the mothers that most of these infections, certainly the commonest and most serious, are conveyed from other children and that the germs obtain lodgement through an unhealthy condition of the nose and throat. Certainly most of these infections give notice of their presence by aches and pains, by the boy being "off colour." The mother notices that something is amiss and calls the doctor, but this is after the damage is done. Infection has occurred. Now infection in the sense in which we are now using the term, means two things. It means that a germ producing the disease which is not normally present in the respiratory passages, has

been conveyed there, very often by the dried or moist spittle of another child floating in minute particles in the air and also that a local unhealthy condition of the nose or throat of the affected child or a lowered state of his general health or both has permitted the germ to multiply so greatly that the boy is ill.

Why do some children in a school pick up measles or diphtheria while others in contact with the same original spreaders of infection do not? There are two reasons. One is a natural predisposition to take these diseases, about the causes of which we know very little; the other the lessened local or general resistance we have been speaking of. The child's tonsils, let us say, are diseased and the germ strikes them or he has not been properly fed or has been allowed through exposure to wetting to take a chill; the first thing the mother notices is that the boy is quieter than usual; he takes little notice of his meals or refuses them. He comes in from play to lie down. If his sickness cannot be put down to overeating or to constipation or some such trifling cause, this is the time to call in the doctor or take the boy to the hospital. Infection has occurred. This is the stage at which what is called the incubation period, is over, the effects of the disease are beginning to manifest themselves and every hour is of importance in combating the disease. The importance of these diseases lies, as in the case of measles or scarlet fever, not in themselves, for they are nowadays in civilized communities mild in their course, but in the complications, such as bronchopneumonia and kidney disease, to which they often give rise.

Infantile paralysis of course is serious in itself. The incubation period of the infection varies from two or three days in the case of scarlet fever to two weeks in the case of measles. Thus we see the harm is done by the time the sickness manifests itself. The lesson to be learned from this is that the treatment of the infectious diseases so far as the mother is concerned, is to prevent them by simple measures which she has at hand. These are to keep the children from crowds, especially crowded places of entertainment at night, such as picture shows, and to train them in habits of personal hygiene. The nose and throat must be kept healthy at all costs. The child should be trained in the use of the handkerchief. He should be encouraged not to spit out of doors or in. This will not save him, but it will save his little neighbour, for many healthy children are carriers of disease germs and spread disease among others who readily take an infection. Mothers should make up a bottle of gargle mixture by adding to a pint of water a teaspoonful of a powder containing equal proportions of common salt, borax and sodium bicarbonate. The children should be taught to gargle with this each morning and to take it through the nostrils from a small amount held in the cupped hand.

A common ailment of childhood which causes much pain and many distressing symptoms such

as loss of weight, pale face, irritability and sleeplessness, is infection of the alimentary canal by worms. It may be suspected when there is a milky appearance of the urine, when the child feels pain about the anus when passing his motions and in the lower part of his abdomen, when he picks at his nose and begins to wet the bed. The mother should watch the stools for the tiny white thread worms which are most often present. She should teach the boy to scrub his hands after coming from the closet and to cut his nails short, for the eggs of the worm are deposited on the skin near the anus and are carried on the boy's fingers in the act of cleaning the skin after stool. The closet seat should be kept well scrubbed and the boy should be taught to make sure by personal inspection that the school closet seat is clean before seating himself upon it.

Lice are the school boy's affliction. The infection may be prevented or checked by a thorough washing of the hair and head at the weekly hot bath with soap and water.

#### Bed Wetting.

Why children should wet their clothing and wet the bed is a mystery to medical practitioners. There are very many reasons. It may be when a boy wets his clothes in the daytime a sign of careless habits, that he is allowing himself not to care or it may be the sign of disease of the kidneys or bladder. Diseased tonsils, worms, constipation and nervous causes help to bring about this physical state. In all cases a doctor should be consulted. Punishment or threats of punishment for this condition are the worst steps imaginable. It can nearly always be said that there is a fault in the nervous constitution of the boy which should be remedied. To chastise a boy for this habit is like beating a tottering horse who is unable to drag his load. To lighten the load is the treatment for the horse and so for the boy. To relieve him of some of his school tasks, to send him to bed earlier, to secure a holiday for him. Such measures may be expected to help. Mothers may help by withholding stimulants such as tea and coffee and fathers by waking the boy to pass his water before the expected time of his wetting the bed. It is most often a nervous condition which passes away in a few years and sooner goes when the boy is treated sympathetically by his parents.

#### The Thermometer.

Every mother should possess and know how to use a thermometer. It will be the mother's best friend, for since a sustained pyrexia or raised temperature is the first and undisguisable sign of infection, it will enable her to know when to call the doctor. A thermometer is a hollow thin glass rod five inches long, marked with divisions, having a reservoir at one end. The walls are thick; the hollow compartment extremely fine, communicates with the reservoir which, much wider, contains quicksilver, a metal in liquid form which expands quickly when it is heated. The heat of the body is in health permanently of a definite degree. If the

body is heated by the sun or by a fire, heat is lost by sweating or by the expansion of the blood vessels in the skin and the internal temperature remains the same. This is done in part by cells in a part of the nervous system between the brain and the spinal cord. When disease germs enter the body, their poisons circulate in the blood and, reaching these cells, affect them as a caller might affect an electric bell by pressing a button. The body heat is raised; this is an abnormal state called fever. Fever, then, is a sign of disease. The boy's skin feels hot to the touch. An idea of the force with which the poisons are acting, may be gained by the thermometer. Some take two minutes, others only half a minute, to register. The latter are more expensive, but should always be used because owing to faulty methods of taking the temperature the thermometer often does not register properly. The more sensitive instrument, therefore, is to be preferred.

In taking the temperature the reservoir part and a little more are placed under the tongue, the lips are closed over the thicker, graduated part and the thermometer left in position for at least half a minute. It is then taken from the mouth and read in the brightest light available, always, if possible, in daylight and in the open air. The two ends should be held between the first finger and thumb of the hands and revolved until the silver thread of quicksilver shows clearly, lying in the graduated part. The reading is taken opposite the free end of the quicksilver. An arrow marks the point where the column should end when the temperature is normal. The use of the thermometer is in showing if the temperature is much, say, one degree or more above this point. The thermometer should be shaken firmly after each reading with a swinging motion of the whole arm, causing the column to sink below the normal mark. This should be done also before the taking of a temperature and the mother should see by examining the thermometer before putting it in the mouth that the reading is below normal. After use it should be rinsed in Condy's fluid and allowed to dry.

#### Punishment.

I cannot say one word in favour of corporal punishment for boys. Life brings its own punishments and disciplines. As a doctor I am totally and absolutely opposed to it.

#### Moral Habits.

It has always seemed strange to me that in the medical and home treatment of boys so little attention has been paid to guarding the boy from moral infection. He is taught to care for the tiniest part of his body, such as his teeth, but not one word is spoken to him about preserving it as a whole or guarding its most sacred functions. Moral infection exists in all schools, in all places where boys come together, just as do the other physical infections mothers for centuries have known so well and come to fear. I mean masturbation. I mean the boy's interfering with his own private parts. I

mean habits of evil thinking, of evil conversations. I mean one boy's perverting another by various conversations and associations in the production of sexual excitement. Mystery, ignorance, the charm of what is hidden and, though forbidden, is not spoken about, perpetuate this spirit of evil in boys' schools. Now more than ever the boy needs confidence in his mother's careful choice in the selection of his companions. Can I give mothers a word of advice in this matter without entering on the subject of the advisability of giving instruction in matters of sex? I think I can. Let the mother visit the picture shows the boy is in the habit of attending and satisfy herself the pictures are fit for his sight or as this is in Australia difficult to secure, let her keep him away from them altogether. An experienced teacher of boys once said to me: "When I see a boy with his hands continually in his pockets I know that something is wrong; that boy is almost certainly interfering with himself." If a boy, usually frank and open, becomes suddenly shy and nervous, withdrawing from his companions, going off by himself, taking a less keen interest in his games, let the mother be more watchful and sympathetic, the father kinder and gentler. Often such a boy has been infected by this moral contagion. Let the mother see that the elder brother watches the companionships of the younger and prevents or, if he can, dissolves bad ones. Let the father interest himself particularly in the boy, his character, ambitions and games and let him supervise his bath. Let the boy have in the home a supply of pure, good reading. Let the mother see that his companions are of his own age, let her see that he keeps his body physically clean by a warm bath once a week. Let her bring him to a hospital clinic or a doctor for advice on the subject of circumcision if the foreskin is unduly long or in other ways is causing secretions to gather. Let the boy not associate with any child of low intelligence, for these more readily are the victims of perversion. Let the home be free from pictures which excite the imagination and stimulate the passions of the growing boy. I mean pictures of partly dressed women. Let the newspapers which enter the home, be clean and pure. As soon permit children bearing an accumulation of all the infections treated at Fairfield Hospital enter the home as one newspaper with pictures of the partly nude or written descriptions of crime or disgraceful conduct.

Let the parents above all things gain the confidence of the boy. A mother in Austria said to me: "I am not afraid my boys will ever do wrong. I know them. They often asked me when we were at the zoo why an animal did this or that thing. I told them. When they asked me where they came from, I told them from a little nest inside me where I sheltered them for a long time. This made them love me more for it made them think of the pain I suffered for them. I never told them any lies. I know if they wished to know anything, they would come and ask me. If they did anything wrong, I would be the first they would tell."

**Recreation.**

Of physical recreation the boy will get his fill. For mental recreation there are the boys' authors, Manville, Fenn, Ballantyne, Talbot Baines Reed, Henty, Father Finn, Dean Farrar. Let him have blood and thunder, stories of pirate adventure, red Indians, Buffalo Bill and Jules Verne. To welter in imaginary gore is a necessity for the healthy, normal boy. Far better will it be for the boy to pore at home over a book, in imagination sailing the Sargasso Sea, than sitting in a stifling theatre, drinking in the false moral standards of the picture world. In holiday time let the zoo, the bush or the beach be his playground. Let him forget the dead streets of the suburb for a day. Teach him a hobby, any one. The thoughtful intellectual boy may have a bookish one, stamps or reading, but for all boys one requiring work with the hands, carpentry, sloyd work, experimental chemistry or such like, will be good. Cultivate his love for pets, pigeons and dogs. He will learn to love these, if only his parents will make him lord of a little of the back yard.

**The Bowels.**

The bowels should be opened by a laxative at least once a week. Saturday night is a suitable occasion. Half an ounce of castor oil sandwiched between equal amounts of orange juice or a drachm of Gregory's powder is good. Let brown bread, fruit and green vegetables form part of every day's diet. A dessertspoonful of liquid paraffin night and morning will work wonders in removing an obstinate constipation. Mothers should accustom themselves to measuring all medicines and foods in drachms or ounces instead of teaspoons or table-spoons which vary in size and may through heaping or careless filling, cause the dose to vary 60%. This may be a serious matter when doses of patent medicines are being given. A medicine measure glass marked in drachms and ounces can be bought at any chemist's shop. Every mother should have one.

**When to Send for the Doctor.**

If an ounce of castor oil will not open the bowels, if the boy's temperature is over 100° Fahrenheit on two days in succession, when pains in the limbs, a temperature over 99° F. and a cold in the nose, together with an irritable or sick looking boy is what the mother finds, when the boy has lost weight continuously for one month, when the very finest, slightly raised red rash comes out over the trunk and face and limbs, when in the presence of a raised temperature a boy who has not had a knock, drags his leg or cannot use his arm as he usually does, when after an attack of measles a boy begins to breathe faster and looks blue and always and at once, when a child complains of a pain in his chest made worse by breathing, the doctor should be called.

**Conclusion.**

For the boy training and discipline are necessary. These must come from the home. I believe

the mother's example is all powerful in this respect. Two mothers whom I saw at the hospital, bring this clearly home to me. One mother whom I questioned upon her daughter's diet replied: "I am most careful, doctor, to give my children nothing between meals." The child was well fed and bright. The other mother had brought her child suffering with stomach pains—the child was listless and unhappy. The diet was a very bad one and she it was who had been permitted to eat four bananas before her tea.

**POST-ANÆSTHETIC ACIDOSIS.**

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It is a common observation that general anaesthesia produces an acidosis, that is an over-production of acid bodies in the organism. This acidosis has been noted by various investigators. Thus Morriss<sup>(1)</sup> has shown that with general anaesthesia there is a lowering of the carbon dioxide combining power of the plasma and has advocated the use of potassium bicarbonate as a prophylactic for post-anæsthetic acidosis. Short<sup>(2)</sup> has shown that the decrease in plasma bicarbonate is not dependent on the formation of acetone bodies, as was formerly thought. Cullen<sup>(3)</sup> and others have shown that the acidosis is uncompensated, that is, there is an immediate fall in hydrogen ion concentration in the blood.

There is in the course of general anaesthesia a disturbance of carbohydrate metabolism similar to that which occurs in *diabetes mellitus*. Ross and Davis<sup>(4)</sup> believe that the hyperglycæmia is produced by a depression of the internal secretion of the pancreas and Bloor<sup>(5)</sup> has further noted the similarity of the two conditions, finding a rise in the blood fats with ether anaesthesia. Mahler<sup>(6)</sup> has shown that the blood cholesterol and blood sugar both rise during ether anaesthesia and he has prevented the rise with "Insulin."

The acidosis of anaesthesia has been recognized by various laboratory methods—the lowering of the carbon dioxide combining power of the plasma and the appearance of acetone bodies in the urine, the rise of the acidity in and the ammonia coefficient of the urine. A post-anæsthetic acidosis is seldom recognized in the wards, as the clinical sign—deep "Kussmaul" breathing—is only seen with a great depletion of the alkali reserve.

Many workers, notably Potter,<sup>(7)</sup> have tried to prevent or assuage the post-anæsthetic vomiting and nausea by attempting to control the acidosis. For this purpose some anæsthetists give barley sugar before operation. Potter came to the conclusion that, while not specific, glucose was very desirable as a prophylactic of post-anæsthetic vomiting.<sup>(7)</sup>

However, there would appear to be no unanimity of opinion regarding the prophylaxis of anaesthetic vomiting or whether the acidosis is harmful and many patients are still starved for anything up to twelve hours before operation in an attempt to prevent vomiting.

#### SERIES I.

In our first series of cases we have attempted to correlate the degree of post-anæsthetic vomiting and nausea experienced by the patients with the severity of the acidosis, as demonstrated by various laboratory tests. To do this we have examined the blood and urine of patients, collected immediately before and after anaesthesia and on these specimens we have carried out the following examinations:

1. Urine: (a) Acidity, (b) ammonia coefficient—the ratio:

#### Ammonia in grammes per hundred cubic centimetres

Urea in grammes per 100 cubic centimetres

Both these values rise in an acidosis.

2. Blood: (a) The carbon dioxide combining power of the plasma. This value falls in an acidosis.

#### Methods.

The following are the methods which we have used. In determining the acidity of the urine five cubic centimetres of urine have been neutralized to phenolphthalein and the result expressed as number of cubic centimetres of decinormal alkali needed to neutralize one hundred cubic centimetres of urine.

In determining the ammonia coefficient ammonia has been estimated by the formaldehyde titration method<sup>(8)</sup> and the urea by the hypobromite method.<sup>(9)</sup>

For estimating the carbon dioxide combining power of the blood the method of Van Slyke has been used.<sup>(10)</sup>

In Table I are given the results obtained with this, the first series of cases. The patients in this

TABLE I.

Case No.	Urine.				Blood.		Degree of Vomiting.	
	Acidity.		Ammonia Coefficient.		Carbon Dioxide Combining Power of Plasma.			
	Before.	After.	Before.	After.	Before.	After.		
1	28	62	0.053	0.063	68	48	None.	
2	96	154	0.073	0.135	58	56	Very severe.	
3	82	202	0.040	0.131	56	50	Slight.	
4	64	238	0.069	0.077	60	50	Slight.	
5	136	238	0.047	0.056	59	50	Slight.	
6	78	178	0.039	0.060	67	57	Slight.	
7	10	124	0.036	0.076	52	46	Severe.	
8	98	148	0.156	0.207	74	58	?	
9	102	236	0.050	0.072	52	48	Severe.	
10	20	180	0.026	0.050	52	50	Severe.	
11	88	128	0.075	0.050	58	50	None.	
12	—	268	—	—	62	54	Slight.	
13	112	282	0.035	0.100	76	50	Slight.	
14	5	14	0.046	0.067	80	72	Slight.	
15	—	—	—	—	40	36	Slight.	
16	108	368	0.025	0.071	57	45	Slight.	
17	68	235	0.036	0.050	57	50	Slight.	
18	—	—	—	—	57	45	Slight.	
19	50	84	0.050	0.112	72	59	Slight.	
20	43	109	0.030	0.072	62	54	Slight.	
21	110	370	0.056	0.083	57	50	Severe.	
22	101	280	0.072	0.072	—	—	Severe.	

series had practically no food during the twelve hours before operation. The last meal, consisting of a very small piece of toast and butter and a cup of tea, was given approximately four hours before operation. There was a very small meal of tea and toast eight hours before this.

#### Discussion of Table I.

It will be seen that among twenty-two patients there were six who had fairly severe vomiting and fifteen who had little or no vomiting. One patient, number 8, was not classified owing to the difficulty in deciding to which class he belonged. In this series "no vomiting" means no vomiting at all and "slight vomiting" means one or possibly two attacks of vomiting with rapid subsidence of nausea. The patients in this class felt fairly well eighteen hours after operation. "Severe vomiting" means prolonged vomiting and nausea, lasting for more than eighteen hours after operation.

There was evidence of an acidosis in every case, as shown by the methods employed. The plasma bicarbonates fell and the acidity rose in every patient tested. The ammonia coefficient rose in all the patients tested, except Case XI in which it fell, and Case XXII in which it remained the same.

There was considerable variation in the individual figures. Thus the fall in the plasma bicarbonate varied from two in Case X to twenty in Case I. Similarly the rise in acidity varied from 260 in Case XXI to nine in Case XIV and the ammonia coefficient varied from a fall of 0.025 in Case XI to a rise of 0.071 in Case III.

We then compared the figures in the two groups of cases, those with "severe" and those with "slight" vomiting. The results are conveniently tabulated, the figures given being the averages of the cases taken.

TABLE II.  
Acidity of Urine.

Group.	Before Anæsthesia.	After Anæsthesia.	Difference.
12 patients slight vomiting	72	178	106
6 patients severe vomiting	73	224	151

It will be seen that there was a greater increase in acidity in the "severe vomiting" series.

TABLE III.  
Ammonia Coefficient.

Group.	Before Anæsthesia.	After Anæsthesia.	Difference.
12 patients slight vomiting	0.045	0.076	0.031
6 patients severe vomiting	0.052	0.081	0.029

Here the figures indicated practically the same degree of acidosis both in the "slight" and "severe" vomiting cases.

TABLE IV.  
*Carbon Dioxide Combining Power of Plasma.*

Group.	Before Anæsthesia.	After Anæsthesia.	Difference.
15 patients slight vomiting ..	62	51	11
5 patients severe vomiting ..	54	50	4

In this grouping the patients with the "slight vomiting" showed a very much greater drop in the carbonates than those with the "severe vomiting," the final figures being practically the same. Those patients who had severe vomiting, went into the theatre with an alkali reserve that was well on the low side of normality, the extreme limits of normality being 53 to 77<sup>(11)</sup> and the relationship between the high reading before anæsthesia and the absence of vomiting was quite definite.

It might at first sight be reasonable to expect a greater fall in plasma bicarbonates with a greater rise in urinary acidity and ammonia coefficient, but that these two phenomena, the variations in plasma bicarbonates and urinary acid bodies, are not interdependent has been proved by Short.<sup>(2)</sup>

When considering the various measurements undertaken in the first series, it will be seen that the urinary findings in respect both of acidity and ammonia coefficient showed that severe acidosis was usually associated with severe vomiting.

The plasma bicarbonates, however, gave more striking results, the relationship between the high initial value and "slight vomiting" being quite definite, but even here the initial reading is not an absolute indication of the patient's "vomiting chance," as in Case XV, with an initial value of 40, the patient had only "slight vomiting" and several patients amongst the "no vomiting" series had initial readings which were on the low side of normality. Still, it appeared to us to be rational to adopt steps likely to increase the plasma bicarbonates as a prophylactic against vomiting and this has been done in our second and third series of cases.

It is an easy matter to increase the carbon dioxide combining power of the plasma by the administration of carbonates, but this has been done by Morriss<sup>(1)</sup> and he has found that it does not control the post-anæsthetic vomiting. We therefore have tried to increase the bicarbonate in a physiological manner, having considered that the carbonates themselves are probably not the important factor in preventing vomiting, but rather that they are a rough index of the liability to vomit. It is well known that starvation produces an acidosis with diminution of the plasma bicarbonates and we have attempted to prevent this by the pre-anæsthetic administration of glucose, an old empirical practice, and in some cases glucose and "Insulin," working on the analogy of the treatment of diabetic acidosis. We have tried two series of patients (Series II and III), one with "Insulin" and carbohydrate and the other with carbohydrate alone.

#### SERIES II.

The preparation of the patients in Series II consisted of two carbohydrate meals during the twelve hours before operation. The patients to be operated on in the morning were given ten units of "Insulin" with two biscuits (either "Marie" or "Uneeda") and a full dessertspoonful of commercial glucose (about forty grammes) at 10 p.m. on the previous night and this was repeated at 7 a.m. Patients who were to be operated on in the afternoon, had the glucose, biscuits and "Insulin" with tea and toast at 7 a.m. and the glucose, biscuits and "Insulin" repeated at 12 o'clock midday. The approximate value of each of these meals was 210 calories with a "glucose value" of 203 calories.

TABLE V.

Case No.	Blood.		Degree of Vomiting.	
	Carbon Dioxide Combining Power.			
	Before.	After.		
1	65.0	56.0	Very slight.	
2	65.5	65.5	None.	
3	69.2	63.6	Slight.	
4	60.7	63.6	Slight.	
5	59.5	61.4	None.	
6	57.6	51.9	Very slight.	
7	63.3	63.3	Very slight.	
8	71.0	-	Very slight.	
9	72.9	67.2	Slight.	
10	68.0	69.5	Slight.	
11	59.4	55.5	Very slight.	
12	64.3	52.0	Very slight.	
13	54.8	48.1	None.	
14	69.1	48.1	Very slight.	
15	51.9	45.3	Very slight.	
16	61.3	45.3	Slight.	
17	56.0	48.0	Very slight.	

The average before was 62.9 and after operation 56.5; the difference was 5.4.

In this series of seventeen patients no patient vomited severely and two patients did not vomit at all. There was not, as in the first series, a drop of the carbon dioxide combining power in every instance, several patients gave the same value both before and after and several had higher values after anaesthesia. It is striking that the average value before anæsthesia is almost the same in this series as in the "slight vomiting" cases of Table IV. There is, however, a much smaller fall in the carbonates, a drop of 5.4 as against 11.

We then tried a series of ten patients with carbohydrate alone.

#### SERIES III.

The preparation of Series III was identical with that of Series II, except that the "Insulin" was omitted.

The average figures are practically the same as in the "Insulin" and carbohydrate series, except that there was a smaller fall. The patients once again were all well, with the exception of Case VIII, that of an old gentleman who died before he regained consciousness. In three cases there was no vomiting at all and in three there was only one slight attack

TABLE VI.

Case No.	Blood.		Degree of Vomiting.	
	Carbon Dioxide Combining Power.			
	Before.	After.		
1	61.7	58.5	Slight.	
2	59.8	54.1	None.	
3	80.0	54.1	Very slight.	
4	65.3	59.8	Very slight.	
5	61.7	52.2	Very slight.	
6	61.4	61.4	None.	
7	59.5	52.2	None.	
8	32.8	32.8	Died.	
9	53.8	53.8	Slight.	
10	76.0	58.5	Slight.	
Average	61.2	58.4	Difference = 2.8	

of vomiting, the patient feeling very well in less than eight hours. In no case did the patient feel nauseated the next day.

#### SUMMARY.

1. In a series of twenty-two cases of ether anaesthesia evidence of acidosis was obtained in each instance.

2. The plasma bicarbonates fell and the titratable acidity of the urine rose in each case tested.

3. The ammonia coefficient of the urine rose in all the patients tested except two.

4. When the patients were grouped according to the severity of vomiting it was found that the "severe vomiting" group showed a greater increase of acidity in the urine and usually, though not invariably, a lower initial carbon dioxide combining power of the plasma.

5. In a series of seventeen cases of anaesthesia in subjects to whom food and "Insulin" were given before the administration of the anaesthetic, the carbon dioxide combining power of the plasma fell only slightly during the anaesthesia. The average initial carbon dioxide combining power was high and no patient vomited severely.

6. In a series of cases of anaesthesia in ten subjects who did not receive "Insulin," but who were fed with carbohydrate before anaesthesia, similar results were obtained to those of the last mentioned series, in respect of both the carbon dioxide combining power of the blood and the occurrence of vomiting.

#### ACKNOWLEDGEMENT.

We should like to thank the surgeons of the Alfred Hospital who permitted us to work on their patients.

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## Reports of Cases.

### TWO INTERESTING ABDOMINAL CONDITIONS.

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AND

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THE following two cases are sufficiently uncommon to warrant a description.

#### Case I.

Mrs. R., aged thirty-two years, was admitted to the Melbourne Hospital on June 7, 1929, with a history of severe abdominal pain of four hours' duration. Whilst entering a tram, she was seized with severe pain in the epigastrium radiating later all over the abdomen. On admission the pain became localized in the right iliac fossa. She vomited profusely with pain, bringing up her breakfast, but no more. During the previous four hours she had vomited three times, but gastric contents only were returned. Her bowels were open, but there was no diarrhoea. She had been constipated occasionally and had had mild attacks of colicky pain in the central part of the abdomen. There was no irregularity with the menstruation.

According to the past history she had been in the Melbourne Hospital in January, 1929, for chest trouble. X ray examination at that time revealed bilateral tuberculosis of the lungs and pleural effusion on the left side. Flattening of the right upper part of the chest had been found with tubular breath sounds. Fine crepitations were audible in the left axilla. No tubercle bacilli were found in the sputum. She had been treated as a patient with pulmonary tuberculosis.

On examination on June 7, 1929, rigidity and tenderness were present all over the abdomen. The board-like rigidity and the sudden onset suggested a diagnosis of perforated ulcer of the stomach or duodenum, yet no history of indigestion was obtained. The pulse rate was 116, the respiratory rate 22 and the temperature 36.7° C. (98° F.). Pelvic examination revealed tenderness in the posterior fornix.

Under ethylene and oxygen anaesthesia a right upper paramedian incision was made into the abdomen. Viscid fluid, bile stained and obviously of small intestinal origin, was present everywhere. The duodenum was examined, but no trace of ulcer was seen. The stomach was inspected. The small intestine was then inspected commencing at the duodeno-jejunal flexure, when, at a point about sixty centimetres (two feet) from this spot, two perforations were seen through which the intestinal contents were bubbling. A constriction in the lumen of the bowel was found just distal to the perforations. The latter were oversewn and infolded and the lumen of the bowel being thus reduced owing to the already present stricture, an entero-anastomosis was performed between the two sides of the affected loop, short-circuiting the stricture and infolded ulcers. Drainage tubes were placed in the pelvis through a suprapubic stab and also in Morrison's pouch. The abdomen was closed. On the patient's return to the ward the pulse rate was 140 in the minute. A litre of tap water was given rectally and a litre subpectorally. Recovery was complete enough for her discharge to a convalescent home on the fourteenth day.

The interest of the case lies in the presence of a perforation in the jejunum, a rare occurrence, and the pathological lesion was probably a tuberculous stricture of that portion of the intestine. No inspection of the ileum was carried out owing to the desperate condition of the patient.

#### CASE II.

Mrs. R., aged twenty-nine years, was admitted to the Melbourne Hospital on June 7, 1929, with pain in the left lower part of the abdomen for the past ten hours. At 5.30 a.m. she had been awakened by severe pain in the left iliac fossa, accompanied by vomiting. The pain had persisted until admission at 4 p.m., but had become generalized over the whole abdomen. Vomiting had occurred in small amounts at frequent intervals. Pain was also present in the right shoulder. According to her past history she had had pain in the left lower part of the abdomen during the past year, especially worse at the menstrual periods. One month previously she had had her usual period. The day before admission she passed blood *per vaginam* for ten minutes and thought it was due to the usual period.

On examination she was seen to be an exsanguinated young woman with a temperature of 36.7° C. (98° F.), a pulse rate of 130 and a respiratory rate of 26. Diffuse tenderness and slight generalized rigidity were present all over the abdomen, more pronounced in the left iliac fossa. Liver dulness was not diminished. The cervix was found to be pushed to the left and a large mass was palpable in the anterior fornix and to the left.

At operation a suprapubic mid-line abdominal incision revealed a large amount of blood. This was removed by a Sprengel pump and given to the patient as an auto-transfusion during the operation. The left ovary was a mass the size of a small orange and had ruptured. It was removed together with the left uterine tube. The abdomen was closed and a further blood transfusion given. The pulse rate was 140 on the return of the patient to the ward. A litre of saline solution was given by the rectum. On June 12, 1929, the patient was discharged to a convalescent home.

The pathologist reported that chorionic villi were seen in the organ removed. The tube was normal.

The interest here lies in the presence of chorionic villi in an ovary not adherent to a tube. The inference is that an intraovarian pregnancy had occurred.

#### Reviews.

##### PERCUSSION OF THE THORAX.

In 1761 Leopold Auenbrugger published his invention of percussion of the thorax as a means of discovering disease within, and in the same year Oliver Goldsmith, a physician better known as a writer, reviewed the invention in the

London press. Fifty years later, through the advocacy of Jean Corvisart, the medical profession began to use the method.

Dr. J. B. McDougall wisely opens his small book<sup>1</sup> with an historical chapter; three others follow, on the technique of thoracic percussion, on the acoustics and on the changes which occur in certain diseases. All these matters are sufficiently discussed and we specially commend the description of the different "species" of percussion, the recommendation of the light species and the insistence that, if possible, the patient should sit upright on a chair. Due consideration is given to reflex collapse and its differentiation from pneumonia.

Unhappily the language is often inelegant, so much so as sometimes to be scarcely intelligible.

In his desire for comprehensiveness the author has included Abrams's notion of visceral tonicity with increasing dulness "when the patient faces the geographic west." This shows lack of discrimination. Nevertheless the work is a useful summary of the subject. It is very clearly printed and nicely bound.

##### AN OUTLINE OF MEDICAL HISTORY.

THOSE medical men who are desirous of gaining a knowledge of the history of the modern developments in the art of medicine, especially during the eighteenth and nineteenth centuries, will do well to read Dr. Singer's "History of Medicine."<sup>2</sup>

In his preface the author tells us that he has purposely omitted biographical details and has given us the story of the scientific elements in medicine.

In order to arrive as rapidly as possible at what he calls the period of scientific subdivision from 1825 onwards, the early strivings of our medical forbears during the Greek, Roman and mediaeval period are summarized in a few brief chapters. The scientific advances of each period are detailed and the various outstanding figures are described. The period from 1500 to 1700, called the rebirth of science, is devoted to a description of the work of Vesalius who founded the modern science of descriptive anatomy, and in the same chapter we find an excellent account of the work of the immortal Harvey. The influence of discoveries in other sciences on the practice of medicine are also detailed and the gradual evolution of microscopical work through the genius of Malpighi, Leeuwenhoek and Swammerdam form a most interesting section.

The chemical and physical discoveries of Boyle, Descartes and Borelli together with the physiological ones of Harvey may be said to have laid the foundations of modern rational medicine.

The period of the eighteenth century is looked upon as a period of consolidation during which the great discoveries of the previous century were gradually developed by men such as Galvani, Volta, Black, Priestley and Morgagni.

We then come to the period of scientific subdivision dating from 1825 to the present day. Dr. Singer tells us that previous to this time the investigators explored at large in the various departments of medicine. From then on the scientific investigator became a specialist. This modern period occupies half the book and contains a most detailed and fascinating description of the great modern discoveries in all branches of medical science. Every department is fully described and on every page one encounters familiar names, Lister, Pasteur, Florence Nightingale, Freud, to take some at random. Vitamins, ductless glands, tropical diseases and their discoverers are all mentioned.

<sup>1</sup> "Percussion of the Chest," by J. B. McDougall, M.D. (Glasgow), F.R.C.P. (Edinburgh), F.R.F.P.S. (Glasgow); 1929. London: H. K. Lewis and Company, Limited. Crown 8vo, pp. 151, with illustrations. Price: 6s. net.

<sup>2</sup> "A Short History of Medicine Introducing Medical Principles to Students and Non-Medical Readers," by Charles Singer, M.A., M.D., D.Litt. (Oxford); 1928. Oxford: The Clarendon Press. Post 8vo, pp. 392, with illustrations. Price: 7s. 6d. net.

The book itself is excellently illustrated and printed by the Clarendon Press and the mere perusal of the pictures will afford a bird's eye view of the historical progress of the medical sciences.

### NORMAL SEX LIFE.

"**THE HYGIENE OF MARRIAGE,**" by Dr. Isabel Hutton, is written for non-medical readers and can be confidently recommended to such.<sup>1</sup> Though containing only one hundred and twenty-one pages, it is a mine of information, and covers the whole field of normal sex life. In fact, there are very few medical readers who would not learn something of value from reading it.

In the preface the author writes: "Since the publication of the first edition of this book I have become more than ever convinced of the harmful and far-reaching effects caused by ignorance of the facts of normal sex life." A specific example of misconception due to ignorance, is the belief that sexual intercourse is harmful during the menopause; the author states that this belief is widely held. It is a fact that is hard to reconcile with our pride in civilization that so few reliable books are obtainable on the subject of normal sex for the man in the street and incidentally for the woman who is off the street. Books on such subjects as philately or poultry breeding are plentiful, but books dealing with human breeding, one of the subjects of most importance to the race, are taboo.

There is nothing of importance in this book with which we would disagree, unless it be on the psychological side. For instance, the author advises, when dealing with the subject of temporary impotence, that the patient "must be confident and suggest to himself that he is capable." Lack of confidence in such cases is often due to ignorance and knowledge will do more to dispel worry than the exhortation not to worry.

There is no mention of the commonly occurring irregularity of the menses for a varying time after their inception, despite the fact that many mothers consult medical practitioners on this account because they think it is a symptom of disease.

If this book or another as sanely written were in the hands of every "engaged" couple, much misery would be prevented. Among other benefits would be a considerable reduction in the number of sexually anaesthetic wives who are at present 50% of the total according to some observers.

### A BOOK ON GONORRHCEA.

**PELOUZE'S "Gonococcal Urethritis in the Male,"** is claimed by the author not as a text book upon gonorrhœa but as a simple story of his experience in this field of medicine.<sup>2</sup>

The volume is well written and interesting from the author's unusual treatment of the subject. In the early chapters stress is laid on a knowledge of the habits of the gonococcus as well as the pathological histology of the inflamed urethra and its adnexa. The author's principles of treatment are on conservative lines and have due regard to the prevention of trauma. This appears to be the main reason for his highly successful results. The low incidence, as quoted by him in his practice of involvement of the prostate gland and seminal vesicles is no doubt due to his high respect for the delicate tissues of the urethra in disease. Most workers in this field would not agree with the author's views as to the low incidence of vesiculitis, which is usually regarded as the most common cause of chronicity in gonococcal infections. His remarks on the cause and prevention of complications are well chosen and his views with reference to the defensive processes of the

body in gonococcal conditions are clearly set out. Particular stress is laid on the necessity for assisting the body in its effort to combat the disease and he pleads with the physician not to retard Nature's effort by a too vigorous method of attack.

While admitting the value of urethroscopy, the author makes no attempt to describe the technique of its use, as he regards this method of examination as suited only to those who have had opportunities for special training.

The references to the gonococcal complement fixation test are few and the author does not appear greatly to favour it as one of the criteria of cure. In this respect he differs from many others who are qualified by experience to judge of its value. It may be said, however, that those who read this book cannot fail to profit by it and that it is well worth a place in the library of those who are interested in the subject with which it deals.

### A MONOGRAPH ON CHRONIC ARTHRITIC CONDITIONS.

THERE is already a voluminous literature on the various forms of chronic arthritis, but A. G. Timbrell Fisher in his latest book, "**Chronic (Non-Tuberculous) Arthritis**" has made a contribution to medical literature that will rank high as a monograph written on a foundation of scientific research and clinical observation.<sup>3</sup>

In the first chapter the author attempts by the introduction of a classification on an aetiological and descriptive basis of the conditions commonly known as rheumatoid arthritis and osteoarthritis to put the nomenclature on a more accurate footing. The resultant terminology is, however, too cumbersome for practical use and the author himself admits this by discarding his own creation and states: "For the sake of simplification we shall frequently utilize the older terms." Until the essential aetiological and pathological factors underlying this at present obscure group of joint conditions are known, it would be wiser for clinical purposes to retain the old yet less scientific terms.

The chapters on the physiology of the articulations and on the pathological types of chronic arthritis are the best parts of the book and embody much original experimental research and observation. In the past the physiology of joints has been a neglected subject and the author's researches furnish an explanation of much that was obscure in the pathology of certain forms of arthritis and indicate the fundamental principles of treatment. He emphasizes the vital fact that the lymph drainage of a joint varies directly with the amount of movement in that joint. The bearing of this on treatment is only too obvious and is a sufficient condemnation of the treatment of certain chronic joint diseases by immobilization.

In the chapter on pathology a special study has been made of the earlier stages in the pathology of rheumatoid arthritis and osteoarthritis and for the first time in the literature of the general *post mortem* changes.

In dealing with treatment the author takes a well balanced position, avoiding any tendency to stress unduly either the surgical or medical aspects. He points out that the orthopaedic aspects of chronic arthritis are of extreme importance throughout the disease and not merely, as is considered by many clinicians, in the later stages. Operative measures for the treatment of the later stages of chronic joint diseases are well described, including the author's approach to the knee joint by the patella-displacing route.

The subject matter is thoroughly illustrated with 186 excellent illustrations comprising amongst others histological and macroscopical drawings of actual specimens.

The book should rank as a classic and be read by every practitioner.

<sup>1</sup> "The Hygiene of Marriage," by Isabel Emslie Hutton, M.D.; Second Edition; 1929. London: William Heinemann (Medical Books) Limited. Crown 8vo, pp. 135. Price: 5s. net.

<sup>2</sup> "Gonococcal Urethritis in the Male: For Practitioners," by P. S. Pelouze, M.D.; 1929. Philadelphia: W. B. Saunders Company; Melbourne: James Little. Royal 8vo, pp. 357, with illustrations. Price: 25s. net.

<sup>3</sup> "Chronic (Non-Tuberculous) Arthritis: Pathology and Principles of Modern Treatment," by A. G. Timbrell Fisher, M.C., F.R.C.S. (England); 1929. London: H. K. Lewis and Company, Limited. Demy 8vo, pp. 245, with illustrations. Price: 25s. net.

## The Medical Journal of Australia

SATURDAY, NOVEMBER 16, 1929.

### The Acquisition of Knowledge.

THE education of a medical practitioner is governed to a large extent by compromises. Orthodox teaching is based on the unchallenged dogmas of the past intermixed with a few newly discovered facts or recently evolved hypotheses unwillingly adopted. As long as standardized examinations are used for the purpose of determining whether or not a student's knowledge is sufficient to enable him to practise with safety to his patients, it will be necessary to teach medicine in accordance with a set scheme. The teachers often recognize that many things included in the text books, in systematic lectures and even in clinical talks are probably untrue and certainly speculative. The compromise is necessary, for no student could be expected to have informed himself of the individual views and beliefs of every examiner. After graduation the medical practitioner continues his education by means of reading, observation, experiment, listening to papers read by others or attending post-graduate courses. In other words, he is still dependent to a large extent on authority, although he is at liberty to adopt heterodoxical views, if orthodoxy fails to satisfy him. He will, however, still accept many compromises, working hypotheses, which he knows are probably not true explanations of the phenomena with which he has to deal. The need for compromise seems to be inevitable.

If it be recognized that relatively little concerning the chemical and physical processes of the animal body is known and that dogmatic teaching is merely an expedient rendered essential by imperfect knowledge, the spirit of compromise may be welcomed, provided that each medical practitioner exercises to the utmost his powers of observation and of investigation. In these circumstances organized post-

graduate study will prove to be of the greatest advantage to the medical profession, for by coordinated effort knowledge is being accumulated. Those who are responsible for post-graduate teaching, whether this be effected in set courses, by papers read at meetings of medical societies or articles published in medical journals, should realize that their responsibility is considerable, that observations have to be fully and accurately described in order that they may be registered as fact and that interpretations of facts have to be given cautiously and with a due admission that they are usually but opinions. When the evidence is unassailable and accumulated experience lends clear support to the doctrine, it may pass into the book of knowledge.

In Australia the opportunities for post-graduate study are limited. The Melbourne Permanent Committee for Post-Graduate Work has set an excellent standard and has organized year after year some admirable courses. The plan of inviting eminent practitioners to visit Australia and to deliver lectures on special subjects has proved itself to be of much value to keen searchers for truth. The newer movement in New South Wales promises to provide very useful teaching. Many Australian practitioners seek post-graduate study in Great Britain, on the continent of Europe and in the United States of America. At the present moment Vienna enjoys the reputation as the city with the most advanced post-graduate arrangements. The facilities for study and practice are used to a large extent by American practitioners and Australians have been attracted by the fact that the courses are given in the English language. Good teaching is available in Berlin, in Paris and in many other Continental centres. In Great Britain there is a fine organization known as the Fellowship of Medicine, which acts as a clearing house for visiting graduates who are seeking some special course. It also publishes a journal in the pages of which much information concerning post-graduate courses is published. Our special correspondent in London gives information from time to time concerning the activities of the Fellowship of Medicine.

From these few indications it will be gathered that an immense amount of individual effort is

being expended for the purpose of assisting medical practitioners to acquire current knowledge essential for the practice of their profession. The detachment of these efforts detracts from their combined importance and value to the profession. Moreover, it is probable that a more useful instrument could be forged if the organizers had in view the standardization of knowledge and its promulgation. Post-graduate schools should be created with the object of procuring the fullest use of the available clinical material, of stimulating every participant to exercise his powers of observation under the control of the teacher and his fellow graduates, of establishing a permanent record of all discovered facts and of coordinating the work in such a manner that each practitioner may turn his attention in any direction dictated by his interests or opportunities. We understand that the British Medical Association has in view the institution of a well organized scheme of post-graduate work which should be of the utmost value to visiting practitioners from the overseas dominions. It is suggested that use will be made of provincial hospitals as well as of those institutions in which there are many patients but no students or outside practitioners to benefit by the lessons offered by every pathological process. Sir Ewen Maclean made many references during his stay in Australia to his desire to develop post-graduate study in England on a well conceived plan. A sound scheme will demand very careful preparation and elaborate organization. It may be a costly movement, but if it be cast on an extensive scale, if it be instituted with a view to the restriction of the compromise and to the elaboration of a dogma built up on proven fact and logical deduction, it should be of inestimable benefit to the whole of the medical profession throughout the British Empire.

### Current Comment.

#### COPPER AND ANAEMIA.

IN 1921 Mallory, Parker and Nye described experiments in which as a result of the administration of copper they claimed to have produced accumulation of iron free pigment in the liver together with cirrhosis of the organ. They held that this pigment was allied to haemofuscin. When Flinn

and von Glahn repeated Mallory's experiments recently, they failed to produce cirrhosis, but observed the accumulation of so-called haemofuscin in the liver. They found that the same result could be obtained with sodium acetate and that a diet of carrots caused a heavier pigmentation in a shorter time than was caused by either copper acetate or sodium acetate. Cyril J. Polson has recently repeated Mallory's experiments.<sup>1</sup> He points out that Mallory makes no mention of normal controls. Polson used twenty-six rabbits as controls. In three of this number cirrhosis of the liver was observed. Ten rabbits were given a diet of cabbage, oats, bran and thirds to which an aqueous solution of copper acetate was added. The experiments lasted on an average for 328 days. In only one animal was cirrhosis found and the histological evidence was such that it was concluded that the condition had been present at the beginning of the experiment. In the livers of five rabbits which had the largest doses of copper sulphate, a small excess of iron was found. It was found that when copper acetate and iron were added to the same diet as the preceding group received and given to eight rabbits a greater storage of iron occurred than when iron was given alone. In this group cirrhosis did not occur. Two rabbits were given subcutaneous injections of copper powder suspended in liquid paraffin and were killed a month later. A control rabbit was given subcutaneous injections of liquid paraffin alone. A small quantity of haemofuscin was found in the liver cells at the periphery of the lobules in all three rabbits. The diet of these animals included turnips and mangels. As further controls a series of forty-seven rabbits was fed on cabbage, bran, oats and thirds; these rabbits were being used for research on iron. A second series of thirty-two rabbits, also being used for research on iron, and eight to which iron was not given, were fed on turnips or mangels, oats and hay. Of the first series none manifested haemofuscin in the liver. Of the second series twenty-eight of those receiving iron and seven of the normal controls had varying amounts of haemofuscin in their livers. Six guinea-pigs were given 100 milligrammes of copper acetate in their food for periods of from 209 to 300 days. All were in good health and no pathological lesion was found on *post mortem* examination.

This account of Polson's work serves to recall some recent investigations by McHargue, Healy and Hill, published in the *Journal of Biological Chemistry*. An abstract of this article appeared in THE MEDICAL JOURNAL OF AUSTRALIA of April 6, 1929. These workers dried, ground and analysed the livers of young calves. The livers were treated and two solutions were made, the one copper free and the other containing copper. The solutions were then given with a carefully regulated diet to two lots of albino rats. Haemoglobin estimations were made and it was found that those receiving copper had a higher haemoglobin percentage than

<sup>1</sup>The British Journal of Experimental Pathology, August, 1929.

those which received no copper. It was concluded that copper has an important function in the formation of haemoglobin. The rats in this series received copper in an organic form and Polson's rabbits which were fed on carrots, mangels and turnips, also ingested an organic form of copper. As was pointed out recently in these pages in connexion with Polson's work on iron, metals received in an organic form in the food are absorbed much more easily than metals received in an inorganic form in solution.

When it was found that liver was effective in the treatment of pernicious anaemia in human beings, an effort was made to determine the active principle. Experiments were carried out on dogs in which anaemia had been produced. Whole liver was found to be effective; defatted liver and liver in which the protein was split, also yielded satisfactory results. When the liver was ashed, good results were also obtained. Since copper was found in the ash, the question was naturally asked whether copper was responsible. Some Australian physicians have given verbal reports of improvement following the use of copper in pernicious anaemia. Sight must not be lost of the fact that anaemia in dogs is essentially different from the pernicious anaemia of human beings. It is doubtful whether the results of the experiments on dogs can be translated to the condition of patients with pernicious anaemia; but in view of the work which has been carried out, several avenues should be explored.

It should be possible to determine what part copper plays in experiments such as those reported by Polson. The nature of the haemofuscin-like pigment is not clear. If this be an iron pigment, it might be possible that the copper acts on the protoplasm of the liver cells in some way that augments or directs its activity in a certain direction. It is remarkable that the haemofuscin-like pigment was demonstrated after sodium acetate had been given. This observation should be confirmed and an effort should be made to discover the way in which the result was produced. If copper were essential to the normal action of the liver cells, it would be unlikely that it could be replaced by a salt such as sodium acetate. The sodium salt might activate copper which was lying dormant and the sodium acetate might be contaminated with copper. It is possible to produce in animals secondary anaemia which resembles pernicious anaemia of human beings. Animals in which anaemia of this kind was produced, might be subjected to experiments such as those described above. The effect should be carefully watched. Histological studies of the liver should also be made in the light of the study by Mettier reported in these columns on November 2, 1929, so that the effect of copper on the Kupffer cells might be determined. In experiments such as this it would be necessary to remember, as previously stated, that the secondary anaemia of an animal is not really comparable with the primary anaemia of a human being. If a certain form of treatment was successful in

a secondary anaemia, it might or might not be successful in a primary anaemia. On the other hand, if the treatment was not successful in a secondary anaemia, it would be useless in a primary anaemia. In the meantime it may be concluded that copper is of importance in a set of circumstances which combine to cause pernicious anaemia. This is sufficient to justify the careful administration of copper in a colloidal form to pernicious anaemia patients.

#### THE TREATMENT OF BACILLUS COLI PYURIA.

It is well known that in the treatment of persons suffering from pyuria due to infection with the *Bacillus coli communis*, improvement may often be effected by the alteration of the reaction of the urine. When the urine, for example, is acid, alkalis may be given with some urinary antiseptic until the reaction has been changed. It is sometimes found effective to alter the reaction more than once in the course of treatment. A study has been made by A. H. Johansen of the action of phenyl salicylate and its relation to the reaction of the urine.<sup>1</sup> In the first place he worked with definite hydrogen ion concentration values. He added organisms from a broth culture of *Bacillus coli communis* to sterile urine and made a series of transplants at intervals of four hours. He then gave one gramme of phenyl salicylate four times a day to the person from whom the specimen of urine was obtained, and the results were tabulated. A third series of observations included the administration of calcium chloride as well as of phenyl salicylate. It was found that with the administration of phenyl salicylate the mixture of urine and broth became sterile earlier than when no drug was administered and that sterility occurred still earlier when calcium chloride was given. There is no information as to the extent to which it was necessary to alter the hydrogen ion concentration values. He administered calcium chloride and phenyl salicylate to twenty-four patients suffering from pyuria and obtained sterile urine in nineteen instances in periods which varied from seven to thirty days. On the experimental side the results are interesting and might well be followed up. It is not sufficient to note the fact. The blood chloride content and the various decomposition products should be examined. It is also necessary to remember that the altered osmotic tension and the hydrogen ion concentration may inhibit bacterial growth and that this inhibition acts in addition to bactericidal action of the phenyl salicylate. Something more than acidity is responsible. The observations on the patients should be carried out on a large series and they might be controlled by a similar series treated by other means. There is no reason to conclude that the calcium chloride administered to them had any added effect.

## Abstracts from Current Medical Literature.

### NEUROLOGY.

#### *Myasthenia Gravis.*

ARIE QUERIDO (*Journal of Nervous and Mental Diseases*, May, 1929) records a case in which all the clinical characters of *myasthenia gravis* were present and in which *post mortem* examination revealed widespread changes in striated muscles, liver, lungs and kidneys. The changes consisted of perivascular foci containing leucocytes, lymphocytes, plasma cells and fibroblasts, with traces of haemorrhage. The wall of the vessel running through such foci was infiltrated with the same types of cell. Supported by some evidence from other records, the hypothesis is offered that *myasthenia gravis* is a general vascular disease, to be defined pathologically as a *perivasculitis chronicus proliferans*.

DOUGLAS MCALPINE (*Brain*, April, 1929) records a case in which the clinical picture and course were thought to be typical of *myasthenia gravis* and in which pathological examination revealed a change chiefly affecting the white substance of the spinal cord and brain described as mucocytic degeneration. This change was mainly characterized by extremely numerous deposits of mucin. In addition many blood vessels were surrounded by small round cells, an appearance which suggested encephalitis as a possible forerunner; but against this there was no history of any acute illness. Lymphorrhages in the thymus gland and in ocular muscles, as found by Buzzard in five cases of *myasthenia gravis*, were not found here. It was concluded that there is a form of *myasthenia gravis* associated with inflammatory changes in the central nervous system whose cause is problematical.

#### *Head Injuries.*

DONALD ARMOUNG (*Brain*, December, 1928) states that among both surgical and neurological problems there is none presenting greater difficulties of decision than the treatment of head injuries. Consideration does not end with the discovery of a fracture. Concussion or contusion is just as important. A general increase in intracranial pressure is the commonest result of a severe head injury and accounts for much. An examination of the cerebro-spinal fluid is almost essential because in a large proportion of cases of concussion an increase of tension and an excess of albumin may be found. The formula is that such change appears after two or three days and may remain for weeks and even months. Determination of the degree of intracranial pressure is all important, more so than the finding of blood in the cerebro-spinal fluid. In the retina dilatation of veins with stasis and oedema, not

sufficient to be described in diopters, are early signs. Turning to the practical side a plea is made for lumbar puncture as a therapeutic measure in both acute and chronic injuries. Lowering the intracranial pressure by the intravenous injection of dextrose or hypertonic solutions or by intestinal instillation of magnesium sulphate is also recommended. No operation should be performed while the patient is in the condition of severe initial shock. The time for operation is "the stage of capillary anaemia," when it is believed the increasing cerebro-spinal fluid pressure approximates to the capillary pressure. The operation of choice is a right-sided subtemporal decompression.

#### *Neurological Diagnosis in Pernicious Anaemia.*

N. W. WINKELMAN AND J. L. ECKEL (*New York State Journal of Medicine*, March 15, 1929) report five cases to indicate difficulties in neurological diagnosis presented by pernicious anaemia. In the first patient peripheral neuritis and in the second a malignant stricture of the oesophagus confused the diagnosis. In the third case the clinical findings and the histological changes revealed in the spinal cord on *post mortem* examination were exactly those of pernicious anaemia and yet at no time was the blood characteristic. In the fourth patient a confusional mental state dominated the neurological signs and obscured diagnosis until the blood was examined. In the final case the condition was even more confusing because with a blood picture highly suggestive of pernicious anaemia there coexisted signs of *tabes dorsalis*, the Wassermann test yielded no reaction and microscopical examination of the spinal cord revealed decided changes in the posterior but none in the lateral columns.

#### *On Cerebellar Function.*

SVEN INGVAR (*Bulletin of the Johns Hopkins Hospital*, December, 1928) delivering the Herter Lectures for 1927 at the Johns Hopkins University, chose the cerebellum as his subject. His first lecture on the phylogenetic continuity of the central nervous system was wholly anatomical, his second lecture on cerebellar function contained the following points of clinical interest. He said that ten years previously he had formulated the theory that the cerebellum was designed for the regulation of postural or static tone; it was an organ of equilibration in the wider sense of the word. In cases of cerebellar ataxia the impaired limbs behaved more or less like dead things attached to the body and this to his mind was one of the most clean-cut symptoms in the cerebellar syndrome. He also expressed himself as strongly in favour of a localization of function in the human cerebellum, specially as regards arm and leg, and quoted cases in support. A man with metastatic carcinoma confined to the right biventral lobe had characteristic disturbance of

the right leg as the only positive neurological sign. Also a child of ten years with a gliomatous cyst occupying the upper surface of the left hemisphere manifested cerebellar ataxia decidedly in the left arm as well as slightly in the left leg. The finger-nose, knee-heel and adiadiadochokinesis tests were sufficient to disclose the cerebellar disability. The topical representation of the arm and leg in the hemispheres of the human cerebellum accorded with the findings of comparative anatomy (Bolk) and experiment (Van Rhijnberk and others).

#### *The Mongol.*

R. M. CLARK (*Journal of Mental Science*, October, 1928) in a second communication further considers the suggestion that mongolism is caused by a fetal hyperthyreoidism ceasing at birth. He maintains that an analogy with Graves's disease is provided by the strabismus, rolling movements of the eyes, liability to polar cataracts, small eyes, ill-fitting eyelids, thin eyelids, ptosis, epicanthus, thinness of bones lining the orbital cavities, high arched eyebrows and wrinkled forehead so often found in mongol idiots. Speckled irides and rosy cheeks are two other conditions common to the two diseases. Other hypotheses on the causation of mongolism are those of Jansen and Van der Scheer, suggesting ischaemia and physical compression due to a defective amnion at the sixth or seventh week of fetal life, and of Crookshank, suggesting an atavism.

#### *Cytoarchitecture and Progress of Cerebration.*

C. V. ECONOMO (*Revue Neurologique*, November, 1928) remarks that the cerebral cortex may still be regarded as the main functional seat of higher intelligence, notwithstanding that studies in connexion with *encephalitis lethargica* suggest the basal nuclei as participants in this function. After all, the simple reflex arc is at the bottom of all physiological activity in the nervous system and it is in the myriad cells of the cortex and their connexions that are accumulated, associated, influenced and transformed the multitudinous impulses which circulate therein. From his elaborate studies on cell lamination and for the purpose of this discussion the author distinguishes five main types of cortex: motor, frontal, parietal, polar and sensory. In describing their characters, he emphasizes the point that sensory cortex (visual, auditory and tactile) exhibits a decided fourth or granular layer. Regarding the significance of the individual cell laminae he subscribes to the view that the fifth and sixth and perhaps the third layers have an efferent function; they may give rise to fibres destined for spinal cord and mesencephalic and mesencephalic nuclei. The fourth layer, on the contrary, is a place of impact for corticopetal fibres; it is a receptive layer. The significance of the first and second layers is doubtful. Discussing the function of areas

in general, he holds that the frontal lobe is actively psychical, while the parietal lobe deals with the elaboration of sensorio-receptive impressions. In man as compared with lower animals not only are the frontal and parieto-temporal lobes dominantly developed, but a number of cytologically distinctive areas has appeared, about which it may be said that, although their exact significance is uncertain, they are at least indicative of exaltation of existing faculties and progressive cerebration.

#### The Muscular Dystonias.

A. AUSTREGESILO AND ALUIZIO MARQUES (*Revue Neurologique*, October, 1928) give a clinical account of five patients whose condition came within the category of muscular dystonia. A typical subject shows extraordinary muscular movements, suggesting gross and intense chorea and consisting of torsion spasms chiefly hinging on the trunk and pelvis. These distortions arise only when voluntary movement is attempted; at rest in bed they disappear. Onset is gradual, commonly between the ages of eight and fifteen years; progress is steady and leads to a bedridden state with deformity, hence the name *dystonia muscularis deformans*; pain is absent and intellect undisturbed. The writers think that the affection is not confined to Russian and Polish Jews, as has been maintained. They also conclude that two classes of the affection call for distinction: first, a pure, primary and slowly progressive form whose cause is doubtful, and secondly, mixed forms connected with Wilson's disease, certain infantile encephalopathies, pseudosclerosis and *encephalitis lethargica*. The cases here recorded seem to pertain to the latter class. The pathology of the disease is in doubt, but the *corpus striatum* may be the site of responsible changes.

#### THERAPEUTICS.

##### Pneumonia.

J. L. CHESTER (*Annals of Clinical Medicine*, May, 1929) reports the results of treatment of pneumonia by rectal injection of potassium permanganate. Twenty-one patients with lobar pneumonia and two with broncho-pneumonia were treated in a general hospital; the severity of the illness varied, but many patients were seriously ill. Twenty-one patients recovered and two died. Twenty patients were treated in a hospital for the indigent and derelict; these patients were all seriously ill and many were chronic alcoholics or had lowered resistance owing to their mode of life. Five recovered and fifteen died. This recovery rate was very much better than the average for pneumonia in this institution. Ten patients were treated without potassium permanganate and all died; often treated with this drug, five recovered. A solution of 0.12 grammes (two grains) of potassium perman-

ganate to 852 cubic centimetres (one and a half pints) of warm sterile water was made. Ninety to one hundred and fifty cubic centimetres (three to five ounces) of this solution were injected into the rectum every three to five hours for forty-eight hours by means of a funnel and catheter. In some cases 90 to 240 cubic centimetres (three to eight ounces) were given every three hours for as long as ten days. As a rule, after forty-eight hours the administration was reduced to 90 to 120 cubic centimetres (three to four ounces) every twelve hours, but was increased to 90 to 120 cubic centimetres every three or four hours, if the condition was not satisfactory. In many cases the temperature came to normal in three to five days. The quantity used was varied according to the age and power of retention. The injection was best given comfortably hot with the patient on the left side, the solution being introduced slowly. The ideal time was about half an hour after a bowel movement. A cleansing enema may be given first. Mucous casts of the bowel are sometimes found, but can be disregarded. Potassium permanganate rapidly gives off oxygen in the presence of water and is converted into potassium manganate, manganese dioxide and manganese salt. The manganese dioxide is an antiseptic and an antidote to certain poisons and may be an antidote to the toxins in pneumonia.

##### Nuclear Extractives.

N. W. JONES, B. I. PHILLIPS, O. LARSELL AND H. T. NOKES (*Annals of Internal Medicine*, January, 1929) have reported the use of nuclear extractives in the treatment of anaemia. Patients with pernicious anaemia and various secondary anaemias were dealt with. Chicken corpuscles, beef spleen, beef liver, beef heart muscle, beef kidneys, salmon liver, beef thymus and beef pancreas were used. Extractives were prepared containing from 0.5% to 3.0% of each of the above substances and 0.5 to 2.0 grammes of extractive were given by mouth three times a day. The best results were obtained with chicken corpuscles, especially the nuclear part; the cytoplasm of the red blood corpuscles was found to have no effect on the blood. It is suggested, therefore, that it is the nuclei of the substances used which produce the haemopoietic effect. In pernicious anaemia the effect of the above extractives appeared to be equal to that of liver. Blood regeneration was noted also in patients suffering from haemorrhage from gastric ulcer and fibroids in those with anaemia of some respiratory infections, with cellulitis, with sinusitis and in children suffering from anaemia associated with malnutrition. The haemoglobin value and the number of erythrocytes both increased considerably within a few weeks under this treatment. Thirty-four patients were treated in all. Liver appeared to have a greater stimulating effect on the blood regenerating mechanism than had

pancreas or thymus, but its effect was not so pronounced as that of spleen extract. It appears that kidney, pancreas, spleen and possibly beefsteak may be used to supplement liver feeding. The results reported here indicate that a good response may be expected from feeding with nuclear extractives in secondary anaemias as well as in pernicious anaemia.

##### Barium Chloride.

T. M. McMILLAN AND C. C. WOLFERTH (*Journal of Laboratory and Clinical Medicine*, June, 1929) describe an untoward effect of barium chloride in producing aberrant ventricular beats in a patient suffering from heart block. A woman, aged fifty-three, had three attacks of complete heart block from which spontaneous recovery took place after intervals of two months or less. In a fourth attack barium chloride was administered with return to normal rhythm in ten days; the patient was discharged on a maintenance dose of twenty milligrammes taken twice a day. Eight months later she developed complete heart block again and was given twenty milligrammes of barium chloride four times a day. After four days frequent short periods of very disturbed and irregular ventricular tachycardia occurred; these appeared to be due to extra systoles, as many as seven occurring in succession. The auricular rate rose from 78 to 126 and the average ventricular rate rose from 25 to 30 after barium therapy. The patient died suddenly 72 hours after barium was stopped. This result may have been contributed to by the barium chloride, although the dose administered was much less than is often used in such cases.

##### "Salihexin."

E. P. CORSON-WHITE (*Medical Journal and Record*, December 5, 1928) discusses the use of "Salihexin" in the treatment of arthritis. "Salihexin" is a white amorphous solid, readily soluble in water; it is a synthetic compound prepared by the interaction of hexamine and acetylaminosalicylic acid; it is quickly absorbed from the intestines and rapidly eliminated in the urine; its toxicity is low when given intravenously. Thirty patients suffering from chronic arthritis whose condition was verified by X ray examination, were treated. Fifteen intravenous injections of a 10% aqueous solution of "Salihexin" were given every day and in some this course was repeated after a ten days' interval. Eight patients manifested considerable improvement and twelve moderate improvement. Some patients improved, though septic foci were still present and this benefit was more pronounced when septic foci were removed. Pain and swelling were decreased and function increased in all except five patients in whom the course of treatment was given more than once. Five of the patients treated suffered from *arthritis deformans*, seventeen from infective osteoarthritis and eight from degenerative osteoarthritis.

## British Medical Association News.

### SCIENTIFIC.

A MEETING OF THE QUEENSLAND BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the B.M.A. Building, Adelaide Street, Brisbane, on July 5, 1929, DR. MERVYN PATTERSON, the President, in the chair.

#### Tuberculosis of the Kidney.

DR. E. S. MEYERS showed a pyelogram and related the history of a male patient, aged forty-four years, a quarry worker, who complained of constant pain in the right side of the abdomen, worse at times. The pain did not radiate; there was no frequency or pain on micturition; there was a tendency to constipation. The urine contained no blood. On examination there was tenderness in the right lumbar region. The Wassermann test yielded no reaction. A pyelogram had been prepared and on the right side it revealed some irregularity about the lower calices. The blood urea content was fifty-six milligrammes per hundred cubic centimetres. The figures obtained by the urea concentration test were 3%, 3% and 3%. A guinea-pig had been injected with urinary deposit and the animal had died and manifested tuberculous lesions at autopsy.

On May 16, 1929, a cystoscopic examination had been performed. The bladder had revealed nothing abnormal. Indigo-carmine had been injected; there had been no dye from the right ureter in twenty minutes and dye had appeared from the left ureter in normal time.

On May 18, 1929, a large mass had been felt in the right lumbar region. On May 22, 1929, a perinephric abscess had been drained. On June 8, 1929, a perinephric abscess had been incised.

The opinion of the members was that the right kidney should be removed.

#### Urology.

DR. J. J. POWER read a paper entitled: "Some Notes of a Recent Study of Urology in America" (see page 700).

DR. E. S. MEYERS said he thought they all owed a debt of gratitude to Dr. Power for the trouble he had taken and for the interesting lantern slides he had shown. Dr. Power had covered a large field and had studied the present state of urology closely; he must have gained enormous experience, as he had seen such a lot of material while he was away.

If the Americans were getting such good results, could not men in Australia follow their example? He thought Dr. Power was going about the work in the proper way and hoped he would be able to organize matters in a better way in Brisbane.

Dr. Meyers agreed with the punch prostatectomy. He had had a patient whose condition was similar to those Dr. Power mentioned, with a median bar, and Dr. Power had used the punch on it and the result had been satisfactory. He would like to ask had Dr. Power seen any prophylactic work on urinary stone? He thought that enough was not being done to prevent the formation of gall bladder and urinary stone.

He agreed there was ample scope for biochemistry and inquired as to the use of the carbon dioxide combining power as an index of renal efficiency. Though some of the other tests were not what they might be, if the carbon dioxide combining power were not too low, it was considered operation was safe. The same applied to the cholesterol content of the blood; if this were low, operation should not be undertaken, as sepsis was liable to develop. He concluded with his congratulations and thanks to Dr. Power.

DR. M. GRAHAM SUTTON thanked Dr. Power for the thorough way he had presented the subject and for the interesting things he had said about the American clinics. Dr. Sutton had been interested in the subject for some time and had studied the literature and to him it was very interesting to have a man come back with first hand information. He considered the only way to appreciate anyone's work was to see the man and talk to him. Urology was an important subject and had of necessity to become a specialty. It had had its birth in the perfect-

tion of the cystoscope by Nitz, in the devotion to diagnosis by the Germans and to clinical observation by the French, these two factors being combined by the Americans who had gone into the matter thoroughly and had obtained good results.

He had been pleased to hear Dr. Power mention mercurochrome which he was in the habit of using instead of iodine, combining it with alcohol and acetone. It penetrated the skin well and he used it intravenously in 1% solution in chronic infections, such as pelvic cellulitis. He thanked Dr. Power for the information he had given them.

DR. S. F. McDONALD said that it was interesting to all that the practice of urology had become so extensively and thoroughly developed and he was glad Dr. Power had gone to America to meet those responsible face to face.

There were some points to which he would like to call attention. In the first place enormous emphasis had been laid on diagnosis. He considered the lack of this a weakness in Australia as in all young communities and he thought the operative side overshadowed all others. He recalled previous years when the prostate was simply removed because it was enlarged, without any attention being paid to the previous condition of the patient. These methods had gone owing largely to the Americans and the numerous tests which were so extensively used. In the second place the amount of time which the Americans spent on work, illustrated the saying that medicine was a jealous mistress. These men had little time for anything else.

As seen in France, their good men were very, very good, but their second rate men were lower than those of Australia. He hoped that the day of the general practitioner was not gone.

He had hoped to hear something on the treatment of the more ordinary infections, for example, pyelitis or pyelonephritis, in the treatment of which one drug after another had fallen into disuse. From the chemical and metabolic side he thought they had made little progress. Holinholtz, at the Mayo Clinic, was trying to improve this.

Dr. McDonald referred to the nature of the trains going to the Mayo Clinic and said that a woman comparing them with the pilgrimage trains to Lourdes, had said the latter were the more cheerful.

DR. NEVILLE SUTTON thanked Dr. Power. He had been very interested in the description of his visits. He wished to ask a question with regard to the technique of prostatectomy and he mentioned Dr. Harry Harris who had developed a technique of his own and who was building up a series of cases in which he attempted to reform the prostatic urethra. Dr. Harris had direct control of haemostasis and tried to effect it completely before closing the wound. He did not use a bag, but closed the wound and drained through the urethra. So far he had had no serious mishaps. How did this compare with cases seen in America?

DR. S. WATERS added his appreciation for the urological feast. Speaking as a general practitioner, he would like to mention a case that had come under his notice the previous week; he thought Dr. Power's experiences might help. The history was that four years previously a man had had an attack of renal colic; he had gone to the Brisbane General Hospital, had had an X-ray examination made and a pyelogram prepared, both of which revealed no abnormality. One year previously he had had another attack of renal colic; the urine had been examined microscopically and had been found teeming with triple phosphates. The urine was alkaline in reaction. One week previously the patient had had a third attack of renal colic, but no haematuria. The urine had again been alkaline and teeming with phosphates and the man had passed a stone the size of a pea. What treatment could have been given to the man to render the urine acid and thus prevent the deposition of phosphates into an insoluble stone?

DR. MERVYN PATTERSON also spoke and thanked Dr. Power for his paper.

Dr. Power, replying to Dr. Meyers, said he considered there were men in Australia as good as those in America, but it was the organization over there that counted. The men never worked alone, the anaesthetic was given in

another room by a specialist in this, the assistants were skilled and knew exactly what to do and all worked together.

In regard to prophylactic work with urinary stone, he had been informed that patients had undergone all sorts of diet, had all tests performed and nothing made any difference. He mentioned tomatoes which had previously been forbidden and which the Germans were now recommending. He considered that the important point was to obliterate any obstruction and to obtain adequate drainage. The only diet he would recommend was one which contained abundance of water. Some people passed through a stone-forming stage. The carbon dioxide combining power was extensively estimated at the New York Post-graduate Clinic and he considered it one of the most important of the individual tests.

In reply to Dr. McDonald he said that the Americans claimed to get 92% certainty in diagnosis; every possible test was carried out.

Dr. Power spoke of the fees received by the eminent men in America and stated that 33.3% of the work at the Mayo Clinic was done gratis; all the patients, of course, paid for board and lodging. He said that the wonderful thing about people like Crile and the Mayo brothers was that in spite of all the work they did, they always seemed to be travelling and lecturing somewhere.

With regard to pyelitis, he considered the first thing to do was to look for a focus of infection. If none was found, the ureters should be catheterized and a definite procedure of dilatation, washing out et cetera should be done.

In reply to questions about community hospitals, he said the Americans scarcely understood the difference between public and private hospitals.

With regard to the technique of prostatectomy he thought pre-operative treatment counted for a lot and if the patient were in good health, he stood a much better chance. Dr. Harry Harris had done ninety-six operations with his own special technique. Dr. Gordon Craig was closing the bladder and reconstructing the prostatic urethra.

In reply to Dr. Waters, Dr. Power said that frequently it was impossible to find any cause at all in such a case as Dr. Waters had mentioned. The Americans laid stress on uric acid stones which produced acute renal colic and pain.

A MEETING OF THE NEW SOUTH WALES BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Royal North Shore Hospital of Sydney, St. Leonards, on June 13, 1929. The meeting took the form of a series of clinical demonstrations by members of the honorary staff.

#### Pernicious Anæmia.

DR. F. GUY GRIFFITHS showed a female patient, aged sixty years, who was suffering from pernicious anæmia. She had complained of breathlessness and palpitation for seven weeks, she had a lemon tint in the skin and her tongue was sore. Examination of the blood had revealed the following findings:

Erythrocytes, per cubic millimetre	1,970,000
Hæmoglobin value	48%
Colour index	1.2
Leucocytes, per cubic millimetre	4,375
Polymorphonuclear cells	59%
Lymphocytes	41%

The lymphocytes varied considerably in size, shape and staining. Several macrocytes and an occasional megaloblast were seen.

#### Acute Endocarditis.

Dr. Griffiths also showed a patient, twenty-one years of age, who was suffering from acute rheumatism and endocarditis. The patient had been ill for seven weeks, the temperature was still elevated and a faint systolic murmur was audible at the mitral area.

#### Osteoarthritis.

The third patient shown by Dr. Griffiths, was suffering from advanced osteoarthritis. The patient who was

seventy-two years of age, gave a history of symptoms extending over a period of eight years. The changes in the joints of the hands and knees were very pronounced and there was considerable limitation of movement in the joints of all the limbs. The expression of the patient's face was mask-like and pill rolling movements were present in the left hand.

#### Lymphadenoma.

Dr. Griffiths's fourth patient was a male, aged three years, who had been admitted to hospital on February 6, 1929. The patient's mother said that he had snored and grown listless and pale for a period of a month and that four days before admission he had suddenly become short of breath on lying down. He had had measles and bronchitis. At the time of admission the patient had sat quietly in bed with a pale, swollen face. The cervical and inguinal lymphatic glands had been enlarged as well as the spleen, and the lower edge of the liver had been palpable five centimetres (two inches) and more below the right costal margin. The urine had contained albumin about (one-tenth) and red blood cells and many streptococci. No casts had been found. The patient had had no fever. Examination of the blood had yielded the following findings:

Erythrocytes, per cubic millimetre	4,000,000
Hæmoglobin value	60%
Colour index	0.75
Leucocytes, per cubic millimetre	10,600
Polymorphonuclear cells	79%
Lymphocytes	11%
Eosinophile cells	7%
Basophile cells	1%
Large mononuclear cells	2%

The erythrocytes had been of good size and shape and had taken the stains evenly and well. After the administration of a suitable diaphoretic mixture the haematuria and the albuminuria had diminished and four cubic centimetres (one fluid drachm) of the following mixture had been given in thirty cubic centimetres (one fluid ounce) of water three times a day after food:

Kalii iodidi, 0.72 grammes (12 grains)
Kalii citratis, 4.0 grammes (1 drachm)
Ferri et ammoni citratis, 1.0 gramme (15 grains)
Liquor jowleri, 0.36 ml (6 minimis)
Aquam distillatum ad, 90.0 cubic centimetres (3 fluid ounces)

The patient had done well and had been discharged on March 27, 1929, and had taken the same mixture at home under the care of his own doctor.

On May 27, 1929, he had been readmitted with a mild relapse, with pallor and listlessness and swelling of the cervical lymphatic glands and of the liver.

#### Myxoedema and Hypernephroma.

DR. W. WILSON INGRAM showed a female patient, aged thirty-two years, who was suffering from myxoedema and from a hypernephroma with secondary deposits in the bones. She had been admitted on May 31, 1929, complaining of vague pains in the back and sides, radiating down both legs for the previous two years. Three years before she had weighed 88.2 kilograms (fourteen stone) and her weight had gradually increased until in September, 1928, she weighed 100.8 kilograms (sixteen stone). Her weight eleven years before had been 50.4 kilograms (eight stone). She had also complained of a dry scaly skin and coarseness of the hair. At times her legs had swollen, especially the left, and she had had attacks of acute pain in the neighbourhood of the joints of the lower limbs. Her menstruation had been irregular for two years and she had had complete amenorrhoea for the previous nine months. Four months before she had fallen on her back to the floor and since that time had experienced difficulty in walking upstairs. She had said that her eyesight was not so good as it had been.

On examination her skin was dry and scaly and was discoloured, more especially on the exposed parts of the arms and face, giving her a florid appearance. Her eyelids were edematous, her tongue was clean and moist,

the abdomen moved freely. The skin was very loose particularly at the sides of the abdomen where it hung in folds. There was generalized abdominal tenderness and the left kidney was enlarged and tender on palpation. On examination of the cardio-vascular system the pulse was found to be regular and of good volume and its rate was 80 in the minute. The heart sounds were clear. The patient had attended another hospital for glycosuria six months previously and had been discharged on a diet. A sugar tolerance test had yielded the following result. Before the glucose draught the blood sugar had been 0·11% and neither sugar nor acetone had been present in the urine. Half an hour after the glucose draught the blood sugar had been 0·20%, one hour after the draught 0·25%, one and a half hours after the draught 0·26%; on each of these examinations neither sugar nor acetone had been found in the urine. Two hours after the draught the blood sugar had been 0·23% and the urine had contained a trace of sugar, but no acetone. The patient's basal metabolic rate was decreased by 39%. Her temperature varied from 36·1° to 36·4° C. (97° to 97·6° F.). Her blood urea was 25 milligrammes per hundred cubic centimetres and the blood creatinin was 1·7 milligrammes. Her kidneys concentrated urea to 2·4% in three hours. A skiagram showed that the right kidney was apparently normal. The left kidney shadow was definitely enlarged. The first lumbar vertebra was compressed, especially on the anterior edge, suggesting a secondary deposit in this region. The tenth and eleventh ribs also gave evidence of secondary deposits. There were secondary deposits in the bone of the pelvis. It was suggested that these were secondary deposits from a left hypernephroma.

#### Adherent Pericardium.

Dr. Ingram also showed a man, aged fifty-two years, who had been admitted to hospital on May 20, 1929, suffering from generalized abdominal pain and a certain amount of collapse. The illness had commenced suddenly the evening before admission. Eighteen years previously the patient had suffered from pneumonia and pleurisy. He had been troubled with giddiness and breathlessness for the past eight or ten years and the breathlessness had lately become more acute. The patient had had a cough for some years with a variable amount of sputum and with pain in the chest. The sputum had never been blood stained. The patient had lost about 12·6 kilograms (two stone) in weight.

On examination the pulse had been regular and collapsing. The systolic blood pressure had been 140 and the diastolic pressure 90 millimetres of mercury. The left border of the heart had been ten centimetres (four inches) from the middle line and the apex beat had been in the fifth intercostal space and diffuse. The right border of the heart had extended about five centimetres (two inches) from the middle line and a slight pulsation had been visible in the second and third right spaces. In the mitral area a diastolic murmur had been audible and in the aortic area a to-and-fro murmur; the pulmonary area had been clear. No abnormality had been detected in the nervous system. Examination of the alimentary system had revealed teeth which were variable, a tongue which was clean and moist, free abdominal movement with respiration, tenderness over the liver which was large and pulsating, and tenderness towards both groins. The chest had moved evenly, the percussion note had been resonant and the breath sounds vesicular. The vocal resonance had increased at the right apex posteriorly. X ray examination on May 24, 1929, had revealed some enlargement of the ascending part of the aorta, enlargement of the heart on both sides, the appearances suggesting dilatation rather than hypertrophy, adhesions between the pericardium and the left diaphragmatic pleura. The serum had not reacted to the Wassermann test and the same result had been obtained after the use of a provocative dose of "Salvarsan."

#### Aortic Aneurysm.

Dr. Ingram's third patient was a man, aged forty-three years, who had been admitted to hospital on May 6, 1929. The patient was a married man. He had one child, aged one year and eleven months, which was healthy, and his

wife had had no miscarriages. He had come to Sydney from the country where he had lived for years and had carried on the trade of a carrier. He denied venereal infection.

While walking along the street one day, carrying a suit case, he had suddenly collapsed, had been picked up and brought to hospital. He had been breathless and had a dry, irritating cough. He stated that he had had this cough for eighteen months, but that it had been much worse during the last two weeks. He had complained of breathlessness on the slightest exertion for two years and this had gradually become worse with pain in the chest and down the left arm. The patient was pale, thin and sunburned, he had a "washed out" appearance and was very breathless. Examination of the circulatory system showed that the left border of the heart was situated 11·25 centimetres (four and a half inches) from the middle line. The apex beat was in the fifth intercostal space and visible. The right border of the heart was situated 3·75 centimetres (one and a half inches) from the middle line and there was a slight pulsation visible in the second and third intercostal space. At the mitral area the sounds were clear. At the aortic area there had been a to-and-fro murmur at the time of the patient's admission, but on June 11 only a systolic murmur had been audible. The pulmonary area was clear. The chest moved evenly with respiration. No coarse rubs were present, the percussion note was resonant and suggested emphysema. Rhonchi were present all over the chest. The cranial nerves were intact. There was no involvement of the nerves of the trunk. The knee jerks were exaggerated. The plantar reflex was extensor in type and no other nervous abnormality was found. The leucocyte count on May 7, 1929, had been 22,000 and 89% of the cells had been polymorphonuclear in type. X ray examination of the chest had revealed a pronounced aneurysmal dilatation of the aortic arch and of the innominate artery and considerable mottling at both bases suggestive of a true basal tuberculosis. The Wassermann test had yielded a "+++" response. The sputum had been examined every day and pneumococci with a few haemolytic streptococci had been found. Examination of the larynx had revealed weakness and chronic inflammatory thickening of the cords, the weakness being mainly in abduction. Dr. Ingram pointed out that the patient's general condition had improved with rest, that the cough and sputum had diminished and the breathlessness had become less.

#### Pernicious Anæmia and Subacute Combined Degeneration of the Cord.

Dr. Ingram also showed a man, aged sixty-six years, a retired railway officer, who had been admitted on May 29, 1929, suffering from weakness of the legs and to a lesser degree of the arms. The weakness had been present for two years and the patient complained of tingling and impairment of the sense of touch in the feet, of pains in the back, of general feeling of stiffness in the legs and forearms, of frequency of micturition and of disappearance of sexual powers.

Examination of the nervous system showed that the cranial nerves were intact, except for some pallor of the optic discs. In the right arm there was anaesthesia beyond the distal row of carpal bone on the palmar surface and below the first interphalangeal joint on the dorsum. On the left side there was anaesthesia beyond the proximal row of carpal bones on the palmar aspect and sensation was slightly impaired on the dorsal aspect. Hyperesthesia was bilateral and was found on the forearm and back and front of the hand. The appreciation of heat and cold was unimpaired in the upper limbs, but the reactions were slightly delayed. The triceps jerk was present on both sides and the jerks due to the brachio-radialis muscles were indefinite. Muscular power was diminished, but equal in the upper limbs. All the sensory reactions of the face were normal. The abdominal reflexes were normal. As far as the lower limbs were concerned, there was anaesthesia as far up as the proximal ends of the metatarsals and along the outer border of the foot on the right limb. Tactile sensation was practically normal in the left lower limb, though sensation was delayed. The appreciation of pain was unimpaired in both right and

left legs. The epiconic sensation to heat and cold was diminished from the tips of the toes to ten centimetres (four inches) proximal to the ankle; the left side was normal in this regard. The knee jerks were exaggerated and there was also an extensor response to the plantar reflex on both sides and the ankle jerks were brisk. The stereognostic sense was unimpaired in both upper and lower limbs.

A blood examination on May 29, 1929, had yielded the following findings:

Erythrocytes, per cubic millimetre ..	2,300,000
Hæmoglobin value .. . . .	48%
Colour index .. . . .	1.2
Leucocytes, per cubic millimetre ..	5,625

Pronounced poikilocytosis and anisocytosis had been present. On June 10, 1929, another blood count had been made with the following result:

Erythrocytes, per cubic millimetre ..	2,280,000
Hæmoglobin value .. . . .	50%
Colour index .. . . .	1.1
Leucocytes, per cubic millimetre ..	4,375

Dr. Ingram said that this patient had been in hospital in May, 1928, and at that time an examination of the nervous system had revealed absence of the knee jerk on the left side and an extensor response to the plantar reflexes. The patient had also had loss of power in both legs, but more pronounced on the left, together with impairment of sensation in both the arms and legs. In May, 1928, the erythrocytes had numbered 3,530,000 per cubic millimetre, the hæmoglobin value had been 60% and the colour index 0.9. The patient had been discharged while taking liver extract, but he had not had any liver extract for over five months. There was a total absence of free hydrochloric acid in the gastric juice.

#### Multiple New Growths of the Lung and Mediastinum.

Dr. Ingram showed a *post mortem* specimen of a lung containing multiple new growths. A full account of this case will be published in a subsequent issue.

#### The Tannic Acid Treatment of Burns.

DR. V. M. COPPLESON demonstrated the tannic acid treatment of burns. He said that immediately after admission the patient was given a dose of morphine sufficient to control the pain. The skin about the burned area was cleansed with benzine or ether, gross particles of dirt being removed with sterile instruments. A freshly prepared solution of 5% tannic acid was sprayed over the burns. Any necessary splints or suspension apparatus for limbs were applied. Blankets were placed to form a tent over the bed with one or two electric lights suspended from the roof for warmth and drying purposes. Fluids were forced by mouth or given by hypodermoclysis or proctoclysis. Every half hour the wound was sprayed. After the first half hour it became painless and remained so. From fifteen to twenty-four hours later, depending on the depth of the burn, a dry brown crust, smooth, like a piece of leather, formed over the burn. When this occurred no further applications were needed.

If the burn was superficial, the crust began to loosen at the edges as epithelialization went on and the loosened portion could be cut away with scissors. In the deeper burns the crust usually loosened in two to three weeks, leaving a clean granulating surface which could be prepared for skin grafting by wet dressings of saline solution or Dakin's solution.

If evidence of sepsis arose at any time, holes were made in the crust for application of Dakin's solution or the entire crust was removed by softening it with vaseline.

He showed two patients who had been treated in this way. One of these was a man, aged thirty years, a labourer, who had been burnt on the uncovered areas of the body in a petrol explosion on May 31, 1929. Second degree burns were present over the whole of the face, the ears, the front of the neck and over the dorsum of both hands and wrist. Third degree burns were present on the palms of the hands and on the fingers.

#### Incisional Hernia: Bronchiectasis.

DR. E. M. HUMPHREY showed a male patient, aged sixty-seven years, who had undergone the operation of cholecystostomy in June, 1924, for an acute inflammatory condition of the gall bladder. After the operation he had had an attack of bronchitis and asthma. He had coughed until the wound opened up and all the stitches tore away. The wound had been resutured and again he had coughed until it reopened. There had then been no tissues available for further suture and the patient had been placed in a many tailed bandage made of tin so that his abdomen was kept in a fixed cylinder. The wound had suppurred as a result of so much handling, but it had eventually healed and the patient had worn a leather support for five years. In April, 1928, he had been readmitted with bronchiectasis. He had been admitted for a third time on May 28, 1929, and had stated that since his operation he had had a bulging scar and at times a soft reducible swelling in the right side of the abdomen midway between the ribs and the iliac crest. On May 28, 1929, the lump had appeared and for the first time the patient had been unable to reduce the swelling. The mass had increased in size and had become hard and painful. Colicky pain had been present in the upper part of the abdomen, the patient had not vomited and had not complained of nausea and his bowels had been open. He had complained of cough and of sputum which had been present for years.

On examination his tongue had been furred and a hard rounded swelling had been found in the right side of the abdomen midway between the costal margin and the iliac crest. The swelling had been irreducible, subcutaneous and mobile. It had been slightly tender and pressure had caused a pain which was referred to the epigastrium. Signs of bronchiectasis had been found.

Operation had been performed under ethylene oxygen anaesthesia. It had been found that the hernial sac protruded through a stitch hole 7.5 centimetres (three inches) to the right of the old incision. The sac had contained 12.5 centimetres (five inches) of gangrenous small intestine. Twenty centimetres (eight inches) of bowel had been resected and end-to-end anastomosis performed. The patient had again been put into his tin abdominal splint and ten cubic centimetres of antigas gangrene serum had been given. His general condition was good.

#### Herpes Zoster and Varicella.

DR. GEORGE R. HAMILTON showed a patient who was suffering from *herpes zoster* and varicella. A report of this case will be published in a subsequent issue.

#### Artificial Pneumothorax.

DR. A. J. HOOD STOBO demonstrated an improved apparatus for the production of artificial pneumothorax. An account of this apparatus was published in the issue of November 2, 1929.

#### Chronic Miliary Tuberculosis.

DR. COTTER HARVEY showed a female patient, aged twenty-three years, whom he had seen for the first time in consultation with Dr. H. Leaver on August 15, 1928. She had suffered from so-called influenza three weeks previously and since then had complained of increasing weakness, loss of weight and night sweats. For the previous six months she had had a constant cold, but had otherwise felt well except for an unproductive cough. She had had no previous illness and there was no history of contact with tuberculosis or of any family taint. On examination the patient had been flushed, tremulous and wasted. She had weighed 45.9 kilograms (seven stone four pounds), whereas her usual weight had been 52.2 kilograms (eight stone four pounds). Her temperature had been 37.6° C. (99.8° F.) and her pulse rate 116 in the minute. Her chest had been resonant on percussion and the heart dulness had been obscured. The breath sounds had been prolonged with occasional rhonchi and numerous fine and medium rales had been present all over both lungs. The signs had been consistent with a widespread bronchitis. X ray examination had revealed extensive tuberculosis of both lungs, almost miliary in type. No sputum had been

available. A very bad prognosis had been given. The patient had been kept in bed for the next two months and had been nursed with exceeding vigilance by her mother. The improvement had been slow but continuous after the first week. The temperature had not risen above 37.8° C. (100° F.), the cough had been troublesome, but no sputum had been available. The appetite had improved and the patient had begun to feel stronger. When the patient was seen ten weeks later the chest had been dry and the signs quite indefinite. The radiographer had conceded no improvement, but clinical progress had been remarkable and the patient had gained five kilograms (eleven pounds) in weight. She had been allowed to go about and had been sent to the country. She had had no relapse and the latest skiagram demonstrated considerable clearing. The condition was probably one of permanent miliary mottling from fibrosis.

#### Urological Demonstration.

DR. R. J. SILVERROX gave a urological demonstration. He performed the operation of cystotomy for vesical calculus and he demonstrated cystoscopy for such condition as vesical papilloma, contracted bladder neck and hypertrophy of the prostate. He also showed a number of specimens and discussed the appearances as seen in skiagrams.

#### Ophthalmic Conditions.

DR. E. C. TEMPLE SMITH exhibited an Elliott's scotometer, manufactured by the hospital mechanic. With this instrument the central field only up to 30° was examined. A two millimetre white bead which was allowed to slide on a thread, was viewed at a distance of one metre, instead of, as with the perimeter, an object of twenty millimetres at one-third of a metre. By this means very minute scotomata could be discovered which would be unnoticed by perimetry. The latter was only of value for very gross field defects and for the peripheral limits of the field. By this means the earliest signs of chronic glaucoma—enlargement of the "blind spot" and snail-track extensions therefrom—could be readily detected.

Twenty charts of early chronic glaucoma were shown. One also of enlargement of the blind spot in early retro-ocular neuritis was exhibited. This and the visual disability had been restored to the normal on removal of a tooth with apical sepsis.

Dr. Temple Smith also performed a routine extraction of cataract and gave a demonstration of ionization in ophthalmic work in the operating theatre.

A MEETING OF THE OPHTHALMOLOGICAL SECTION OF THE VICTORIAN BRANCH OF THE BRITISH MEDICAL ASSOCIATION was held at the Eye and Ear Hospital on April 30, 1929, DR. EDWARD L. GAULT, the President of the Section, in the chair.

#### Visual Standards for Navigating Officers.

A discussion on the visual standards required for navigating officers was opened by SIR JAMES W. BARRETT. After speaking of several marine disasters which were directly due to visual defect in the officer responsible for the navigation of the vessel at the time of the accident, Sir James Barrett spoke of the standard of visual acuity demanded of those engaged in the pilot service. These included a test each year of the visual acuity and colour vision of each pilot. The standards at entrance for the Port Phillip Pilot Service were a visual acuity of  $\frac{1}{2}$  in each eye, with hypermetropia of not more than one diopter including 0.5 diopter of astigmatism. Fields and colour sense had to be normal and no ocular disease was allowed; at reexamination  $\frac{1}{2}$  vision was necessary in each eye with normal fields, fundi and colour sense.

Sir James Barrett stated that this system had resulted in the maintenance of a very high order of visual efficiency among the members of the pilot service. He instanced the case of an officer in the mercantile marine who had for years been in a responsible navigating posi-

tion, and yet whose colour vision was grossly defective. He stated that, when an accident occurred at sea, an explanation was sought for diligently, yet a visual test of the responsible persons concerned was not conducted. In his opinion this was a wrong procedure and he moved that:

A deputation from this Section do wait upon the Premier urging the necessity for some form of supervision of the visual acuity of members of the mercantile marine and suggesting that (a) a periodical ocular examination be made of all navigating officers in that service, (b) when a marine accident occurs it be a rule always to have the eyes of the officers concerned examined and reported upon by a competent oculist.

DR. MARK GARDNER, in seconding the motion, expressed himself in entire accord with the views expressed by Sir James Barrett. A suggestion was made that a question might be asked in the House, but it was pointed out by Sir James Barrett that, as a matter of courteous procedure, the Premier should be first approached. The motion was put to the meeting by the President and carried unanimously.

The President then asked Sir James Barrett and the Secretary of the Section to make the necessary arrangements.

DR. F. MILLER stated that these suggestions had already been made to the Prime Minister, Premier and the Director of Navigation. Formal replies stating that the suggestions would be considered had been received. Similar letters had been sent to *The Argus* and *The Sydney Morning Herald* and had been published.

#### Oculist and Optician.

DR. J. F. SPRING addressed the meeting on the need for a wider understanding among the profession as to the position and qualifications of the oculist in comparison with the optician. He deplored the practice, in his experience all too prevalent, on the part of the general practitioner of referring to opticians those of his patients whom he regarded as in need of glasses. He quoted several cases which had come under his notice in which this practice had reacted adversely on the patient. He suggested that a letter on the subject be written by the Secretary to THE MEDICAL JOURNAL OF AUSTRALIA and that another letter be written to the Editor of the journal, suggesting that the matter was one which might well receive attention in the editorial department of the journal.

DR. J. O'BRIEN supported Dr. Spring's statement that the practice was a widespread one, but thought that it was decreasing.

DR. MARK GARDNER favoured the writing of a letter to the Editor, but thought that a signed letter to the journal was inadvisable. He advocated a fuller education of the profession at large on the matter by means of talks to medical students at the time when they were receiving instruction in ophthalmology.

DR. RINGLAND ANDERSON was warmly in favour of an attempt to procure the insertion in THE MEDICAL JOURNAL OF AUSTRALIA of an editorial dealing with the matter.

DR. LEONARD MITCHELL was of opinion that the practice was a diminishing one and supported the idea of accelerating its diminution both as regards the insertion of an editorial in THE MEDICAL JOURNAL OF AUSTRALIA and along the line of fuller education of medical students.

DR. E. L. GAULT asked whether members of any other specialty were embarrassed in a similar manner. His idea in asking that question was that it might be possible to embody in an editorial the support of a general principle rather than a specific instance of that principle. The general opinion of the meeting was that ophthalmology occupied a unique position in this respect.

DR. ARCHIE ANDERSON instanced a case which suggested that the doctor concerned having examined the fundi and found them healthy, evidently regarded the optician as the correct person to whom the patient should be referred for the prescription of glasses.

At the suggestion of the President it was agreed that the Editor of THE MEDICAL JOURNAL OF AUSTRALIA be approached with a view to an editorial being published pointing out the function and responsibility of the oculist and showing how it was in the best interests of the patient to have his glasses prescribed by an oculist. Dr. Gault undertook to bring the matter before the Editor of the journal.

#### Injections of Milk in Ocular Lesions.

DR. ARCHIE ANDERSON then read a paper on the results of a short series of ocular lesions treated by injections of milk.

He said that the results which he had seen in the Victorian Eye and Ear Hospital previous to 1926 of the use of milk injections were not calculated to stir enthusiasm. At Moorfields he had again witnessed the employment of this form of treatment, but the impression left on the mind of the observer was that it was employed in order that no therapeutic stone should be left unturned, rather than with the expectation of its achieving any very definite result. The tone in which it was mentioned in the teaching clinics of that hospital, was rather like that used in speaking of the operative treatment of detached retina, a tone which implied "you had better try it, but it won't do much, if any, good."

In Vienna the attitude of the teachers was quite different. Here great claims were made for the results obtained by the use of milk injections. Pillat, at whose feet he had sat, went so far as to say: "If you do not employ milk injections in the treatment of gonorrhoea in the adult, of acute irido-cyclitis and of all perforating injuries, you have not done the best for your patient." In the case of penetrating wounds he claimed that injections of milk had cured 70% of eyes that would otherwise have been lost. But it was necessary to remember two things: (i) In Vienna they played for safety with perforating injuries and would unhesitatingly remove eyes that in Australia would be regarded as comparatively, if not entirely, safe. (ii) There was in Vienna a consuming flame of zeal and enthusiasm which produced a certain amount of scepticism in the bosom of one who had become habituated to the cautious opinions and ecclesiastical gloom of a place such as Moorfields. A sudden transfer from Moorfields to Vienna was very liable to determine the onset of an acute attack of the salt-pinchin' syndrome.

On account of this factor in the Vienna teaching Dr. Gardner's suggestion that he (Dr. Anderson) should record the results of a series of cases collected in Melbourne was one of which he had eagerly availed himself.

Pillat claimed that many of the indefinite results of milk injections recorded in the literature were due to faulty technique. According to his definite statement there was one and only one way in which milk was to be employed if a successful issue were to be attained. This technique which he (Dr. Anderson) had endeavoured to follow in this series, was as follows. Fresh cow's milk was boiled for three minutes exactly, cooled in a stream of water and injected at once. The site of injection was the medial side of the upper and outer quadrant of the buttock. The needle had to be inserted straight in for at least five centimetres in the adult, in children to the bone and then slightly withdrawn.

After insertion there was a pause of thirty seconds to see if any blood entered the syringe. If so, the needle ought to be withdrawn and reinserted. If no blood entered the syringe, the milk was slowly injected, the needle snatched out and the site of injection massaged for several minutes. Four such injections were given irrespective of the reaction of the patient.

The first two were on consecutive days. A milkless day followed. On the fourth and fifth days injections were given again.

The dosage was fixed on a sliding scale: For a patient of under one year of age two cubic centimetres were given, for a patient of two to five years of age three cubic centimetres were given, for a patient of five to ten years of age five cubic centimetres were given, for a patient of ten

to sixteen years of age eight cubic centimetres were given, for an adult ten cubic centimetres were given. The dose was the same at each injection.

To quote Pillat again: "A smaller dose does not achieve the maximum effect, a larger one does no better." This then was the object of the series of cases he was reporting that night and this the technique employed. Would that the resulting conclusions were more definite!

Dr. Anderson said that his paper was merely an attempt to analyse the case histories of seventeen consecutive patients who had been treated by milk injections at the Victorian Eye and Ear Hospital during 1928.

The patients all belonged to Dr. Mark Gardner's clinic and he gladly acknowledged his indebtedness to Dr. Gardner for his courtesy in placing the material at his disposal.

Of the seventeen patients two suffered from hypopyon ulcer, two suffered from iridocyclitis, thirteen from perforation of the globe; in eight of the latter there had been a retained intraocular foreign body.

The first group comprised two cases of hypopyon ulcer. The first of these had followed an injury occasioned by cement. In spite of vigorous treatment which included repeated cauterizations, both ulcer and hypopyon had persisted for five weeks (thirty-eight days). A course of milk injections had then been given. Nine days after the first injection there had been no stain and seven days thereafter the patient had been discharged.

The second patient, a small boy, aged seven years, had come in with a history of a sore eye of three weeks' duration, consequent upon an attack of whooping cough and measles. The hypopyon had persisted for two weeks in spite of treatment, including two cauterizations. A series of milk injections had been given and fifteen days later the patient had been discharged.

Though the courtesy of those present prevented them from murmuring "*post hoc*," Dr. Anderson knew the thought was present in each mind. He could not prove it otherwise. He could only state that in regard to both these patients there had been created a very definite impression that the milk injections had been of service.

The second group of cases was one in which an iridocyclitis was present. The first of these had a peculiar interest as the type of inflammation presented several of the characteristics commonly associated with sympathetic ophthalmitis. The patient's eye had been needled for a traumatic cataract, the result of a foreign body entering his eye seven years previously. Four months after the needling the eye had become injected, the pupil had not responded to atropine and he had been admitted for a staff opinion as to the advisability of removing the eye. One surgeon had considered it "a dangerous eye to keep," another had recommended the adoption of an Asquithian attitude. Nine days after the first of a series of milk injections the patient had been discharged with a quiet eye.

That such a happy result might have been achieved even without milk injections was suggested by the optimistic opinion expressed by one of the consultants. Nevertheless the improvement had been quite dramatic in its rapidity.

The other case of iridocyclitis was one in which a recrudescence had occurred in an eye after a period of three years. At the time of the patient's admission the eye had been irritable for three weeks and the back of the cornea had been thickly dotted with keratic precipitates. A week after the commencement of treatment all pain and injection had disappeared and the patient had been discharged not, however, before she had cooled their ardour by the statement that her eye had "cleared up just as rapidly last time" and milk injections had not been used "last time."

The third and largest group consisted of thirteen cases of injury to the eye with perforation of the globe.

This was the type of condition to which most attention was directed, partly because Pillat claimed remarkably good results in his cases of this nature, partly because a perforating injury constituted such an anxious condition at all times that any measure that would add to their efficiency in dealing with it, would indeed be a boon.

Unfortunately so many factors had to be considered in these injuries; they presented so wide a range of gravity according to the site and extent of the injury and the nature of the structures involved; so much depended on the presence or absence of a retained foreign body and the extent and nature of the operative interference necessary, that this proved by far the most difficult group in which to assess the rôle played by the milk injections.

Among the thirteen cases comprising this group in four instances the injured eye had had to be excised.

One patient had had a piece of steel in his eye for four weeks prior to admission. The removal of this by means of the magnet had had to be combined with a curette evacuation of the lens. Immediately thereafter the eye had become chemotic, the anterior chamber had been washed out and the wound cauterized. Milk injections had been started at once and in eighteen days the eye had been moderately quiet and free from pain, but it had flared up again and had had to be removed.

Another patient had been admitted with a steamy cornea and a small hypopyon ulcer thirty hours after a piece of steel had entered the eye. The foreign body had been removed with the magnet, but the eye had become infected, necessitating its removal.

A third patient had had an extensive wound involving the sclera and cornea and necessitating the suturing over it of a conjunctival flap. Four weeks later the eye had been quiet and the patient discharged. In another month, however, keratic precipitates had made their appearance and the eye had been excised.

The last of this melancholy group had had a small wound at the limbus, an intraocular foreign body and a prolapsed iris. The foreign body had been removed with the magnet and the prolapsed iris had been snipped off, but the eye had never looked like doing well and had been excised at the end of three weeks.

All these had been very grave conditions and had the milk injections been instrumental in saving any one of them, it would have been little short of a triumph.

There remained only for consideration the group of nine cases in which, following a perforating injury, the eye had become quiet enough to admit of its being retained with safety to the patient.

Of the nine patients no less than seven had suffered from penetration through the cornea, thus making them less hazardous from the very outset. In four there had been a retained foreign body necessitating the use of the magnet for its removal. In one hypopyon had been present.

In two of the seven the lens had been damaged. In two a prolapsed iris had had to be removed. In the remaining two cases of the nine one patient had had a wound at the limbus with prolapse of iris. In the other a foreign body had entered through the sclera below the cornea and had been removed by the magnet.

It would be noted that of these nine successful cases the majority, by the very nature of the wounds, was not comparable with those which had to be excised. But it should not be forgotten that the list included seven with retained foreign bodies, two with damage to the lens and two with prolapse of the iris. It would also be noted that the gravest feature presented by any of these "successful" cases, the presence of a hypopyon, was just that condition upon which the injections appeared to have a definitely beneficial effect as seen in the first group to which he had directed attention.

An attempt had been made to gain information by classifying the cases: (i) according to the period at which the injections were commenced, (ii) according to the reaction produced as indicated by the consequent rise of temperature.

In eleven instances the injections had been started during the first week of the establishment of the lesion. Of these eight eyes had eventually become quiet, three had been lost.

In the remaining six cases the injections had not been commenced until a longer period had elapsed. Of these five eyes had been saved and one lost.

Of the fourteen patients whose reaction, as indicated by the temperature, reached 38.3° C. (101° F.) or over, twelve had had their eyes saved and two lost. Of the three whose temperature had not reached 38.3° C., two had lost their eyes.

If the line of demarcation were moved higher, to 38.9° C. (102° F.) they found that of the nine who surpassed that figure only one lost an eye, of the eight who fell short of it three lost their eyes and five saved them. This suggested that the condition in which the course of injections provoked a definite reaction was more likely to benefit from this form of therapy than the one in which no reaction was evoked.

While no absolutely definite conclusions emerged from a consideration of such a short series of cases, he was probably justified in stating:

1. That a series of milk injections was of benefit when a hypopyon was present.

2. That in one case of potential sympathetic inflammation their employment had seemed to accelerate a cure.

3. That in perforating injury they should be employed, even though their use in the grave cases detailed had not been attended with success.

4. That if their employment produced in the patient a definite reaction, greater hope might be entertained of their efficacy than if the reverse were the case.

DR. J. F. SPRING supported the contention that it was chiefly in those patients who manifested a definite reaction that good was to be looked for as a result of the treatment. He referred to a patient with sympathetic ophthalmitis at present under his care in whom this form of treatment had appeared to exert a favourable influence, at least for a time. He had seen a case of infection following the operation of cataract extraction in which little hope had been entertained of retaining the eye. Following a series of milk injections the eye had become quiet and finally capable of reading  $\frac{1}{24}$ .

DR. J. O'BRIEN quoted good results in the treatment of iridocyclitis by this method. He had found it a therapeutic measure of undoubted value. Regarding the relative value of milk and the synthetic products put upon the market, he recounted the history of a patient whose condition had responded excellently to milk injections. Subsequently the eye had again become inflamed and this time "Yatren Casein" had been injected with no observable result whatever.

DR. MARK GARDNER spoke of his experience in a case of disciform keratitis in which the injection of milk had been followed by a cure so rapid as to make him almost doubt if it could be due to the milk injections alone. He regarded milk injections in the light of his experience of them as of very definite value.

DR. LEONARD MITCHELL had experienced varying results from the use of milk injections. He asked if any work had been done with the idea of measuring the bacterial content of the milk before it was used.

In reply DR. ARCHIE ANDERSON mentioned a case, not included in the paper, in which an eye which had been injured and which had remained mildly irritable. It had been reduced to quiescence by a series of milk injections, even though they had not been given until several weeks after the injury was sustained.

#### Symblepharon.

DR. J. O'BRIEN showed a man in whom complete symblepharon had followed the entrance of sulphuric acid into the eye.

#### Spring Catarrh.

DR. E. L. GAULT showed a patient who had a gelatinous appearing growth on part of the cornea. It was thought to be in all probability an unusual form of spring catarrh.

#### Exudates of Retina and Choroid.

DR. GAULT also showed a patient who was suffering from extensive exudates in the retina and choroid.

## Medical Societies.

### THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA.

A MEETING OF THE MEDICAL SCIENCES CLUB OF SOUTH AUSTRALIA was held at the University of Adelaide on June 7, 1929.

#### The Structure of Blood Proteins.

A paper was read by Dr. C. STANTON HICKS on behalf of himself and Mr. H. F. Holden, M.A., of the Walter and Eliza Hall Institute, Melbourne Hospital. This paper consisted of an interim report upon an investigation of the structure of the blood proteins in so far as their ultra-violet absorption spectrum had any bearing on this matter. As part of this work the blood pigments had been investigated and the absorption curves for oxyhaemoglobin. Reduced haemoglobin, methaemoglobin and acid and alkaline haematin were presented together with absorption curves for globin and denatured globin. These proteins had been prepared with many others in process of investigation at the Walter and Eliza Hall Institute by Mr. Holden and the absorption spectrum work had been carried out in the Department of Physiology and Pharmacology in the University of Adelaide.

The absorption curves showed three main bands, one a very large band in the vicinity of 4,150 Ångström units. These bands, though varying amongst themselves over a range of some 100 Ångström units, were on the edge of the extreme visible violet and in the case of oxyhaemoglobin had been detected by Soret in 1878 to 1883 and further by Gamgee in 1896 using photographic methods. But no quantitative measurements had been made until, using the Hartley method, Rost, Franz and Heise had reported some work in 1909.

In the present case not only was the absorption curve presented with accurate coordinates, but the whole family of related pigments had been investigated, some of them showing bands outside the reach of the previous workers' instruments. The two other bands in the pigments occurred in the region of 3,400 to 3,480 Ångström units and 2,800 to 2,690 Ångström units respectively. In the change from haemoglobin to methaemoglobin the band in the 3,400 Ångström region disappeared and there were other relationships to which attention was drawn and which would be reported in detail when the full data were available.

Attention had been drawn in the past to the remarkable persistence of the first main band at 4,150 and with the modern apparatus available this persistence enabled the detection of small traces of blood pigment. But there was evidence that the similar band for acid haematin would overshadow other bands by almost 100%. It would appear further that the band in the vicinity of 4,150 was a typical band for the blood pigments, being unchanged by the chemical manipulations which altered the other bands either in the visible or in the extreme ultra-violet part of the spectrum. The absorption curve for globin corresponded to the absorption curve in the vicinity of 2,800 Ångström units found in the blood pigments. This curve showed a very low value for the absorption coefficient and was the same for both native and denatured globin. This had an interesting connexion with the different reactions of native and denatured globin respectively with the haematin fraction of the blood pigment.

A long discussion followed which led to the wide subject of protein sensitization and immunity.

In the course of this Dr. L. V. BULL referred to the report of a case in which a definite reaction had been produced by the transient wiping of the tongue with egg albumin.

PROFESSOR H. H. WOOLLARD was inclined to be sceptical of such absorptive powers of the tongue.

DR. F. S. HONE cited a case of his own in which an extensive skin reaction in a sensitive patient was pro-

duced by brushing the skin of the hand with a dahlia leaf. This patient had been successfully desensitized.

PROFESSOR J. B. CLELAND referred to the transference of sensitivity in the case of horse asthma from one sensitive subject to another.

## University Intelligence.

### THE UNIVERSITY OF SYDNEY.

A MEETING of the Senate of the University of Sydney was held on October 14, 1929.

The following degrees were conferred *in absentia*:

*Bachelor of Medicine*: Joseph Thomas Henry and Solomon Julius.

*Bachelor of Medicine and Bachelor of Surgery*: Sylvia Dean Bray, Malcolm Charles McKinnon and George Wilfred Pottinger.

Messrs. Howard Smith, Limited, donated to the University for use in the Department of Physics a radiation pyrometer. The gift was accepted with grateful thanks.

The Executive Committee of the Australasian Medical Congress forwarded a cheque for £150, being the surplus, after paying incidental expenses, from rentals received in connexion with the recent congress, the donation to be applied to the general funds of the University. It was resolved to express grateful thanks to the Committee for its generous action.

The following appointments were approved:

Mr. G. Dale, B.Ec. (Clerk of Examinations), as Acting Registrar from April 1 to December 31, 1930, during the absence on leave of the Registrar (Mr. W. A. Selle, M.A.).

Dr. Raymond W. Firth as Lecturer in the Department of Anthropology.

It was resolved to admit Professor J. L. Shellshear to the degree of Doctor of Medicine (M.D.) for his thesis entitled: "A Study of the Arteries of the Brain of the Spiny Anteater (*Echidna aculeata*).". One of the examiners reported that the thesis was a work of outstanding merit which displayed great originality and opened up an important and much neglected field for fertile research. Professor Shellshear graduated M.B., Ch.M. with second class honours in 1907 and at present occupies the Chair of Anatomy in the University of Hong Kong, China.

It was resolved to admit Dr. Cecil E. Cook to the degree of Doctor of Medicine (M.D.) for a thesis representing an original contribution of distinguished merit adding to the knowledge and understanding of pathology and entitled "The Epidemiology of Leprosy in Australia." One of the examiners reported that the thesis was a real contribution to the literature of the subject and would be of extreme value to students of the subject both in Australia and abroad. Dr. Cook graduated M.B., Ch.M. in 1920.

In the terms of the deed of gift, the following committee was appointed to consider the applications received for the G. H. Bosch Chairs of Medicine, Surgery and Bacteriology: The Chancellor (the Honourable Sir William Cullen), the Deputy Chancellor (Sir Mungo MacCallum), the Vice-Chancellor (Professor R. S. Wallace), G. H. Bosch, Esquire, Sir Kelso King, the Dean of the Faculty of Medicine (Professor D. A. Welsh), Dr. G. H. Abbott, Professor A. E. Mills and Dr. Sinclair Gillies.

## Correspondence.

### SOME PRINCIPLES AFFECTING THE FUTURE OF MEDICAL PRACTICE.

SIR: Of late years, coincident with the enormous increase in the numbers of people patronizing our public hospitals, the conditions of medical practice, at least in Melbourne and suburbs, have been very gradually and unostentatiously modified. The increased cost of special medical investiga-

tion and treatment, the ample facilities in the public hospitals and the increasing expenditure on amusements and luxuries with the convenience of the modern systems of time payment have been partly responsible.

As has been emphasized, the medical profession is facing a very important period in its history and it is most essential that some agreement, at least with regard to principles of future policy, be obtained. The average medical practitioner is unable to devote the time to a proper study of the details of the problem, but in a belief that the main principles can be discussed without considering the details of organization, I have ventured to suggest a few such principles in the hope that some constructive criticism may result.

I believe that it is more rational to attack the problem from the point of view of the proper unit, the basic wage earner, than to start with the question of hospital accommodation and my first principle is really the central point of the whole scheme. It is as follows. The basic wage earner should never need to accept charity unless he is the victim of unemployment or other abnormal circumstances.

If this is agreed upon in principle, the medical profession should strongly advocate the institution of some method of helping the basic wage earner to meet his obligations for sickness without ever accepting charity. The fact that most basic wage earners do accept charity from the medical profession, in many cases having ceased even to regard it as charity, does not appear to be a good thing for any country. The overdrafts of the Melbourne metropolitan hospitals suggest that the burden is too great for the public to bear.

My second principle is as follows. The safest method of insuring that the basic wage earner, not the victim of abnormal circumstances, will be able to meet his obligations is that of compulsory insurance against sickness for all wage earners below a certain specified wage limit. This does not necessarily mean that we should have national insurance, but that in principle the eventuality of sickness can best be provided for by an adequate insurance scheme.

My third principle is as follows. Benefits from any compulsory insurance scheme should be given as cash payments to the insured person on a recognized scale which takes cognizance of the probable cost of the particular illness to the person. This would leave it open for such persons to choose their own medical attendant and their own (non-charity) hospital and the ethics of the profession would not be interfered with. My reason for suggesting this is that any panel system favours a "dispensary" type of practice which adds to the risk of patients suffering from early cancer or tuberculosis to be wrongly treated. Adequate safeguards would, of course, be necessary, but the closing of the charity hospitals to such insured persons and the threat of legal action for non-payment of fees should prevent the few dishonest people from spending the insurance money on luxuries.

The outcome of such a scheme, if properly managed, should be that the public institutions, as at present constituted, would again be limited to the care of the destitute. The medical profession would continue to treat such destitute patients without financial reward. The basic wage earner would be able to afford private medical attention at a fee satisfactory to himself and to his medical attendant.

It would then be obvious where the future development of community hospitals is needed and with the prospect of adequate support there should be no hindrance to their development.

These remarks touch only the fringe of the problem and many of them have been made before. The younger members of the medical profession will share in the future policy of the profession and should therefore take an active interest in its evolution. I hope that there will be much constructive criticism of the principles suggested, for in that way lies progress.

Yours, etc.,

W. L. CARRINGTON,  
Medical Superintendent.

Alfred Hospital,  
Melbourne.

October 14, 1929.

#### TWIN PREGNANCY—UTERINE AND TUBAL.

SIR: The following case appears sufficiently uncommon to warrant reporting.

On November 30, 1926, I was called to attend Mrs. R. *atatis* twenty-five years, and found her to be suffering from severe gripping, colicky pains in the lower abdomen.

Her appendix had been removed some years previously. She stated that she believed herself to be pregnant some four or five weeks and that the pain had come on very suddenly during the course of her evening meal.

On examination she showed all the characteristic signs of internal haemorrhage. There was, however, no mass to be palpated *per vaginam* nor was there any haemorrhage from the vulva. I diagnosed ruptured ectopic and ordered her immediate removal to hospital for operation. On performing laparotomy, I found the right tube somewhat distended with blood and only a moderate quantity of thick dark blood in the peritoneal cavity.

Dr. John Horan, of Perth, who was visiting this town at the time, kindly administered the anaesthetic for me and confirmed the diagnosis.

A few months later she again consulted me relative to enlargement of her abdomen and on examination I found her to be well advanced in pregnancy, to her amazement, and on August 7, 1927, I delivered her of a full time male child weighing seven pounds.

Following her operation she had remained in hospital for two weeks and she and her husband emphatically deny the possibility of pregnancy occurring for at least three months subsequent to her operation.

It is evident, therefore, that the uterus was gravid some four or five weeks at the time of rupture of the gravid tube, survived the operation and proceeded to term.

Yours, etc.,

A. A. HILL, M.B., B.S. (Melb.).

Carnarvon, Western Australia.

October 12, 1929.

#### CHRONIC NEPHRITIS IN QUEENSLAND.

SIR: In THE MEDICAL JOURNAL OF AUSTRALIA of August 3 last appeared a masterly article on the incidence of chronic nephritis in young people in Queensland, by Dr. L. J. Nye, Brisbane, an article which placed with tragic clearness before the profession in Queensland the prevalence of a condition which we have long recognized as only too common in our State. The expression "what a lot of people die of Bright's disease," even amongst the lay population, is familiar to all and unless our efforts are directed to combat this condition, it promises to become a blot on the escutcheon of preventive medicine in our State.

The relationship of the powdery soluble lead carbonate which whitens one's clothes and fingers, found on veranda rails and round about public enclosures and railway stations, to the disease of plumbism, is now well known, but the amazing fact of its threatening so large a proportion of our children, as shown in Dr. Nye's report, should have galvanized us into some action to combat the peril and I would point out that many deaths ascribed to other diseases of childhood occur in children whose renal system has been damaged by lead.

In my own experience two facts have impressed themselves on me as accounting for the preponderance of Queensland cases; one is that nearly all houses are built on high blocks for ventilation and coolness necessitating verandas all round them (quite unlike southern places where the architecture runs to bay windows and small porches), and the children are encouraged or even ordered to play on these verandas out of the hot sun, especially in the summer months. Secondly, the tropical sunlight of north Queensland rapidly dries and flakes the white lead paint, probably due to the presence of more infra-red rays, whilst at the same time the sunlight here is deficient in ultra-violet rays as compared with more southern latitudes. An important secondary effect of this would be

in the calcium metabolism of the children helping in the non-fixation of the soluble lead absorbed.

Dr. Lockhart Gibson's paper as far back as 1904 called attention to painted railings and walls as the source of lead poisoning amongst Queensland children.

By his earnest endeavours the Commissioner of Public Health, December, 1905, stated: "It is urgently desired that no lead be used as a basis for paint applied to surfaces within the reach of young children. Zinc or other paints without lead as a basis are suitable substitutes."

We failed till July, 1923, to get active legislation forbidding the use of lead in paints applied to surfaces within reach of young children.

In the meantime, in spite of the attitude of the profession in Brisbane and Queensland, beginning back as far as 1892, when a paper on "Lead Palsy in Queensland Children" was read at an Intercolonial Congress, one still meets with lead cases with tragic frequency.

In view of this devastating menace which especially seems to threaten the more northern towns, for I am sure there is greater incidence in Townsville of lead neuritis, foot drop and chronic nephritis than exists elsewhere in the State, cannot some definite action be taken? Look round and see the prevailing use of whitelead for guard rails to a drain, a flower bed, a culvert, picket fences and stairs, where active legislation should forbid its use.

Hoping to see this matter taken up at an early date.

Yours, etc.,  
G. W. MASON,  
Medical Officer of Health,  
Townsville,  
North Queensland.

Stoke Street, Townsville.  
October 21, 1929.

#### EXAMINATION OF THE URINE.

SIR: Insurance companies insist on an examination of the urine in all candidates for insurance. The examination of an isolated specimen of urine is of doubtful value. Especially does this apply to the test for glucose, seeing that the test almost universally employed is Fehling's, described by Beaumont and Dodds ("Recent Advances in Medicine") as "most misleading and inaccurate" and "thoroughly unsuitable for clinical work." Benedict's test which is free from most of the disadvantages of Fehling's, should be substituted for the latter; it has the additional advantage of greater convenience, consisting of a single solution in place of the two (or three) of Fehling's.

Yours, etc., E. J. HOWLEY.

Adelaide.  
October 24, 1929.

#### Naval, Military and Air Force.

##### APPOINTMENTS.

THE undermentioned appointments, changes *et cetera* have been promulgated in the *Commonwealth of Australia Gazette*, Numbers 52, 60, 64, 72, 74, 77, 81, 87, 94 and 100, of May 30, June 20, July 4 and 25, August 1, 15 and 29, September 19, October 10 and 24, 1929:

##### PERMANENT NAVAL FORCES OF THE COMMONWEALTH (SEA-GOING FORCES).

*Appointments.*—Henry Kemple Byron Bailey, M.B., B.S., and William George Farrell, M.B., B.S., are appointed Surgeon Lieutenants (on probation), dated 1st June, 1929.

To be Surgeon Lieutenant-Commanders—Surgeon Lieutenants William Langley Brookes and Denis Adrian Pritchard, 3rd August, 1929.

#### AUSTRALIAN MILITARY FORCES.

##### Army Headquarters.

Colonel R. Fowler, O.B.E., V.D., is seconded from the Australian Army Medical Corps, 3rd Military District, and is appointed Assistant Director Medical Services, with pay and allowances of Lieutenant-Colonel, 1st September, 1929, vice Lieutenant-Colonel T. E. V. Hurley, C.M.G., who relinquishes the appointment on 31st August, 1929.

##### First Military District.

###### District Base: Staff.

Major H. S. McLelland, Australian Army Medical Corps, is appointed Assistant Director of Hygiene, 1st September, 1929, vice Major J. V. J. Duhig, who relinquishes the appointment on 31st August, 1929.

Colonel A. H. Marks, C.B.E., D.S.O., V.D., Australian Army Medical Corps, is re-appointed Deputy Director of Medical Services, 1st August, 1929.

##### Australian Army Medical Corps.

To be Lieutenant-Colonel—Major N. C. Talbot, M.C., 13th March, 1929. The provisional appointment of Captain C. D. Gillies is confirmed.

Captain G. H. Brandis is appointed to command the 1st Cavalry Field Ambulance, 1st July, 1929. Major H. S. McLelland is brought on the authorized establishment, 1st September, 1929.

The provisional appointments of Captains H. W. Anderson, H. S. Roberts, W. Park, and J. L. Simmonds are confirmed. Major J. V. J. Duhig is transferred to the Unattached List, 1st September, 1929.

##### Australian Army Medical Corps Reserve.

To be Honorary Captains—Lieutenant A. F. Janes and Honorary Lieutenant C. B. Boddington, 1st July, 1929. Captain R. S. Berry, V.D., is placed upon the Retired List with the honorary rank of Major, and with permission to wear the prescribed uniform, 20th July, 1929. Honorary Captain F. Challands is retired, 4th July, 1929.

##### Second Military District.

###### District Base: Staff.

Colonel F. A. Maguire, D.S.O., V.D., Australian Army Medical Corps, is re-appointed Deputy Director of Medical Services, 1st August, 1929.

##### First Division: Staff.

Lieutenant-Colonel C. W. Thompson, D.S.O., M.C., relinquishes the appointment of Deputy Assistant Director of Medical Services, 30th June, 1929.

Lieutenant-Colonel W. R. C. Beeston, Australian Army Medical Corps, is appointed Deputy Assistant Director of Medical Services, with pay and allowances of Major, 1st September, 1929.

##### Infantry.

*Sydney University Regiment.*—Major A. B. Lilley is appointed to command and to be Lieutenant-Colonel, 1st July, 1929.

##### Second Division: Staff.

Colonel J. H. Phipps, D.S.O., V.D., relinquishes the appointment of Assistant Director of Medical Services, 8th October, 1929.

##### Australian Army Medical Corps.

Captain W. E. Audley is appointed (provisionally) from the Reserve of Officers, 1st May, 1929.

To be Lieutenant (provisionally) supernumerary to the establishment pending absorption—Frederick William Clements, 3rd May, 1929. The provisional appointments of Captains K. C. T. Rawle and S. C. M. Hiatt are confirmed. The provisional transfer from the Sydney University Regiment, 1st Division, of Lieutenant J. D. Cottrell is terminated, 8th May, 1929, and he is transferred to the 53rd Battalion, 2nd Division, 9th May, 1929.

Lieutenant-Colonel C. W. Thompson, D.S.O., M.C., is appointed to command the 1st Field Ambulance and is brought on the authorized establishment of Lieutenant-

Colonels, 1st July, 1929, vice Lieutenant-Colonel A. C. Arnold, who relinquishes the command on 30th June, 1929.

*To be Lieutenant (provisionally) supernumerary to the establishment pending absorption*—Frederick Bryant Uther, 14th June, 1929.

*To be Lieutenant (provisionally) supernumerary to the establishment pending absorption*—George Grafton Lees Stening, 21st June, 1929. Captain (provisionally) R. E. Longworth is brought on the authorized establishment, 1st July, 1929. Captain E. P. Holland is transferred to the Australian Army Medical Corps Reserve, 1st July, 1929.

*To be Captain*—John Lloyd Dibby, 1st July, 1929. To be Captain (provisionally) supernumerary to the establishment pending absorption.—Arthur William Morrow, 20th July, 1929. To be Lieutenant (provisionally) supernumerary to the establishment pending absorption.—Charles Malcolm Lawrie, 20th July, 1929. Lieutenant (provisionally) F. W. Clements is brought on the authorized establishment, 1st July, 1929. Major A. P. Wall is transferred to the Australian Army Medical Corps Reserve, 1st August, 1929. The provisional appointment of Captain R. J. Jackson is terminated, 13th June, 1929.

Captain T. Hamilton is appointed to command the 2nd Cavalry Field Ambulance, 1st September, 1929, vice Lieutenant-Colonel W. R. C. Beeston, who relinquishes the command on 31st August, 1929.

Lieutenant-Colonel W. E. Kay, D.S.O., is transferred from the Unattached List, 21st August, 1929. Major A. S. Curtin is appointed from the Australian Army Medical Corps Reserve, 13th August, 1929.

The provisional appointment of Captain A. E. M. Moir is confirmed.

Captain N. H. Meacle is appointed from the Australian Army Medical Corps Reserve and is supernumerary to the establishment pending absorption, 23rd August, 1929; Lieutenant-Colonel H. V. P. Conrick, D.S.O., is transferred to the Unattached List, 1st August, 1929.

Colonel J. H. Phipps, D.S.O., V.D., is transferred to the Australian Army Medical Corps Reserve, 9th October, 1929. The provisional appointment of Captain C. M. Taylor is confirmed.

#### Australian Army Medical Corps Reserve.

Lieutenant-Colonel J. Reiach is placed upon the Retired List, with permission to retain his rank and wear the prescribed uniform, 12th June, 1929; Honorary Major S. Gillies and Honorary Lieutenant L. Bosgord are retired, 16th June, 1929, and 26th June, 1929, respectively; the resignation of Captain L. J. Hunter, M.C., of his commission is accepted, 24th May, 1929.

Honorary Major A. Davidson is retired, 26th July, 1929.

Honorary Captain T. G. Campbell and Honorary Lieutenant A. H. Newman are retired, 18th September, 1929, and 10th September, 1929, respectively.

#### Third Military District.

##### District Base: Staff.

Colonel R. M. Downes, C.M.G., V.D., Australian Army Medical Corps (Honorary Surgeon to the Governor-General), is re-appointed Deputy Director of Medical Services, 7th July, 1929.

#### Second Cavalry Division: Staff.

Lieutenant-Colonel J. A. H. Sherwin, V.D., Australian Army Medical Corps, is appointed Assistant Director of Medical Services and is granted the temporary rank of Colonel whilst holding such appointment, 1st August, 1929, vice Colonel R. Fowler, O.B.E., V.D., who relinquishes the appointment on 31st July, 1929.

#### Third Division: Staff.

Lieutenant-Colonel J. J. Black, D.S.O., V.D., Australian Army Medical Corps, is appointed Assistant Director of Medical Services and is granted the temporary rank of Colonel whilst holding such appointment, 1st August, 1929, vice Colonel W. E. Summons, O.B.E., V.D., who relinquishes the appointment on 31st July, 1929.

#### Fourth Division: Staff.

Lieutenant-Colonel N. L. Spiers, V.D., Australian Army Medical Corps, is appointed Assistant Director of Medical Services and is granted the temporary rank of Colonel whilst holding such appointment, 1st August, 1929, vice Colonel C. G. Shaw, D.S.O., V.D., who relinquishes the appointment on 31st July, 1929.

#### Australian Army Medical Corps.

*To be Lieutenants (provisionally) supernumerary to the establishment pending absorption*—Paul Jones and Edward Graeme Robertson, 30th April, 1929, and 2nd May, 1929, respectively.

The provisional appointment of Lieutenant N. J. Solomon is confirmed.

The provisional appointment of Captain A. J. G. Mackay is confirmed; the age for retirement of Major R. C. Withington is extended for a period of one year from 24th June, 1929.

*To be Captains (provisionally) supernumerary to the establishment pending absorption*—Lieutenants (provisionally) G. A. M. Knight, E. A. C. Farran, I. J. Wood, P. Jones and E. G. Robertson, and Bryan Tobyn Keon-Cohen, 1st July, 1929. Lieutenant-Colonel E. R. White ceases to be seconded, 30th June, 1929, and is brought on the authorized establishment of Lieutenant-Colonels, 1st July, 1929. Lieutenant (provisionally) L. E. Odium is brought on the authorized establishment, 1st June, 1929.

Captains M. B. O'Sullivan, H. S. Jacobs, V.D., and J. H. Kelly are transferred to the Australian Army Medical Corps Reserve, 1st July, 1929.

Captain H. H. Stewart is seconded, 9th July, 1929.

Major A. P. Derham, M.C., is appointed to command the 10th Field Ambulance, 1st August, 1929, vice Lieutenant-Colonel J. J. Black, D.S.O., V.D., who relinquishes the command on 31st July, 1929. Lieutenant W. L. B. Stephens is transferred from the Melbourne University Rifles, 4th Division, and is Captain (provisionally) supernumerary to the establishment pending absorption, 1st July, 1929. Lieutenant H. D. Phipps is transferred (provisionally) from the Melbourne University Rifles, 4th Division, and is supernumerary to the establishment pending absorption, 1st July, 1929. Lieutenant (provisionally) A. G. Mancy and Lieutenant N. J. Solomon are brought on the authorized establishment, 1st July, 1929. Colonels W. E. Summons, O.B.E., V.D., and C. G. Shaw, D.S.O., V.D., are transferred to the Unattached List, 1st August, 1929. Lieutenant-Colonel T. E. V. Hurley, C.M.G., is transferred to the Australian Army Medical Corps Reserve and to be Honorary Colonel, 1st September, 1929.

Major W. H. Rennick is seconded, 1st August, 1929. Major C. W. Adey is brought on the authorized establishment of Majors, 1st August, 1929. Captains (provisionally) G. A. M. Knight, E. A. C. Farran and I. J. Wood, Lieutenant W. A. Bossence and Lieutenants (provisionally) J. Bastow and H. M. Hill are brought on the authorized establishment, 1st August, 1929.

Captain C. E. Watson, M.C., is appointed from the Australian Army Medical Corps Reserve and is supernumerary to the establishment pending absorption, 1st August, 1929. Lieutenant-Colonel F. E. Keane, M.C., is brought on the authorized establishment of Lieutenant-Colonels, 1st August, 1929. Lieutenant (provisionally) J. R. Seals is transferred to the Australian Army Medical Corps Reserve and to be Honorary Lieutenant, 22nd August, 1929.

*To be Captain (provisionally) supernumerary to the establishment pending absorption*—John Nathaniel Freedman, 6th September, 1929. *To be Lieutenant (provisionally) supernumerary to the establishment pending absorption*—Thomas Gilmour Bowen Allen, 28th August, 1929.

*To be Majors*—Captains R. Hylton and H. G. Furnell, 1st August, 1929. *To be Lieutenant (provisionally) supernumerary to the establishment pending absorption*—Milton Gray Edison, 31st August, 1929. The provisional appointment of Lieutenant A. G. Mancy is terminated, 18th September, 1929, and he is transferred to the Australian Army Medical Corps Reserve and to be Honorary Lieutenant, 19th September, 1929.

*Australian Army Medical Corps Reserve.*

Honorary Captain C. J. B. Sabelberg is retired, 17th April, 1929.

Captain F. E. Littlewood is placed upon the Retired List, with the honorary rank of Major and with permission to wear the prescribed uniform, 17th June, 1929.

To be Honorary Captain—Honorary Lieutenant F. G. Fenton, 1st July, 1929.

Honorary Captain A. N. McArthur is retired, 6th July, 1929.

Honorary Captain S. J. D. Read is retired, 13th September, 1929.

*Award of the Colonial Auxiliary Forces Officers' Decoration.*

*Australian Army Medical Corps.*—Lieutenant-Colonel T. E. V. Hurley, C.M.G.

**Fourth Military District.***District Base: Staff.*

Colonel S. R. Burston, C.B.E., D.S.O., V.D., Australian Army Medical Corps, is re-appointed Deputy Director of Medical Services, 1st August, 1929.

*Australian Army Medical Corps.*

The provisional appointments of Captains D. M. Salter and F. R. Hone are confirmed.

*Australian Army Medical Corps Reserve.*

Lieutenant-Colonel A. J. Meikle, V.D., is placed upon the Retired List, with the honorary rank of Colonel, and with permission to wear the prescribed uniform, 20th April, 1929; Captain G. H. S. Dobbin is placed upon the Retired List, with permission to retain his rank and wear the prescribed uniform, 16th April, 1929.

Major A. V. Benson is placed upon the Retired List, with permission to retain his rank and wear the prescribed uniform, 13th May, 1929; Honorary Major R. H. Pulleine is retired, 7th June, 1929.

Honorary Captains F. Burden and H. S. Covernton are retired, 12th July, 1929, and 2nd July, 1929, respectively.

Major W. R. C. Mainwaring is placed upon the Retired List with permission to retain his rank and wear the prescribed uniform, 26th September, 1929.

Lieutenant D. C. Butterworth is transferred from the General List of the Reserve of Officers, 1st September, 1929.

**Fifth Military District.***District Base: Staff.*

Colonel D. M. McWhae, C.M.G., C.B.E., Australian Army Medical Corps, is re-appointed Deputy Director of Medical Services, 5th Military District, 1st May, 1929.

*Australian Army Medical Corps.*

Captain L. E. Le Souef ceased to be seconded, 2nd April, 1929, and is supernumerary to the establishment pending absorption, 3rd April, 1929.

Captain (provisionally) J. L. Day is transferred to the Australian Army Medical Corps Reserve and to be Honorary Captain, 1st July, 1929.

To be Honorary Captain—Henry Roy Pearson, 8th July, 1929. Honorary Lieutenant G. C. D. Forster is retired, 2nd July, 1929.

The provisional appointments of Captains L. M. Corbet and C. W. Harris are confirmed.

Captain L. E. Le Souef is brought on the authorized establishment, 2nd July, 1929. The provisional appointments of Captains H. Stubbe, W. S. Cook and H. M. Burns are confirmed.

Captain H. M. Burns is transferred to the Australian Army Medical Corps Reserve, 13th September, 1929.

*Australian Army Medical Corps Reserve.*

To be Honorary Captains—Roland Walmer Weaver and Henry John Chadwick Hanrahan, 1st July, 1929.

To be Honorary Captain—Bertie Wilfred Aubrey Buttsworth, 8th August, 1929.

To be Honorary Lieutenant—Frank Henry Gribble Dunn, 29th August, 1929.

*Award of the Colonial Auxiliary Forces Officers' Decoration.*

*Australian Army Medical Corps.*—Colonel D. M. McWhae, C.M.G., C.B.E.

**Sixth Military District.***District Base: Staff.*

Colonel W. W. Giblin, C.B., V.D., Australian Army Medical Corps (Honorary Physician to the Governor-General) is re-appointed Deputy Director of Medical Services, 1st August, 1929.—(Ex. Min. No. 164.)

Major C. N. Atkins, Australian Army Medical Corps, is re-appointed Assistant Director of Hygiene, 1st September, 1929.

*Australian Army Medical Corps.*

Honorary Captain A. W. Shugg is appointed from the Australian Army Medical Corps Reserve and to be Captain (provisionally), 1st June, 1929.

*Australian Army Medical Corps Reserve.*

Honorary Captains E. W. J. Ireland and E. J. Addison are retired, 28th June, 1929, and 1st July, 1929, respectively.

*Award of the Colonial Auxiliary Forces Officers' Decoration.*

*Australian Army Medical Corps.*—Lieutenant-Colonel W. L. Crowther, D.S.O.

**ROYAL AUSTRALIAN AIR FORCE.***Permanent Air Force.**Medical Branch.*

Promotion.—To Squadron Leader, 1st April, 1929; Flight Lieutenant R. B. Davis.—(Ex. Min. No. 105.)

*Citizen Air Force.**Medical Branch.*

Appointments.—Hugh Raymond Guy Poate, M.B., F.R.C.S. (Eng.), F.C.S. (Aust.), to a commission with the rank of Wing Commander, 1st September, 1929; Spencer Carlisle Steele, B.A., M.B., and Thomas Patrick Mahon, M.B., B.S., to commissions with the rank of Flight Lieutenant, 1st September, 1929.

Promotion.—To Wing Commander, Squadron Leader G. C. Willcocks, O.B.E., M.C., M.R.C.P., M.S., 1st July, 1929.—(Ex. Mins. Nos. 225 and 226.)

**Proceedings of the Australian Medical Boards.****VICTORIA.**

THE undermentioned have been registered under the provisions of Part I of the *Medical Act*, 1915, of Victoria, as duly qualified medical practitioners:

Duck, William Joseph, M.B., B.S., 1929 (Univ. Melbourne), 11, Kembla Street, Hawthorn.  
Hay, Arthur, M.B., B.S., 1929 (Univ. Melbourne), 441, Royal Parade, Parkville.

**THE TRADE EXHIBITION OF THE AUSTRALASIAN MEDICAL CONGRESS.**

WE have been informed that in addition to the several exhibits in the Trade Exhibition of the Australasian Medical Congress (British Medical Association), Sydney, 1929, mentioned in our issue of October 5, 1929, there was one by the "Bowker Developing Unit," containing the portable model, the practitioner's model, the specialist's model with drying cabinet, the dental model and the tank and drying unit. These developing units are manufactured in Australia for the purpose of rendering the provision of a dark room unnecessary.

## Books Received.

- VARICOSE VEINS, WITH SPECIAL REFERENCE TO THE INJECTION TREATMENT**, by H. O. McPheeters, M.D., F.A.C.S.; 1929. Philadelphia: F. A. Davis Company. Demy 8vo., pp. 208, with illustrations. Price: \$3.50 net.
- SURGICAL AND MEDICAL GYNECOLOGIC TECHNIC**, by T. H. Cherry, M.D., F.A.C.S.; 1929. Philadelphia, F. A. Davis Company. Royal 8vo., pp. 700, with illustrations. Price: \$8.00 net.
- SNAKES OF AUSTRALIA**, by J. R. Kinghorn, C.M.Z.S., with a foreword by Heber A. Longman, F.L.S.; 1929. Sydney: Angus and Robertson Limited. Imp. 32mo., pp. 198, with illustrations. Price: 10s. net.
- THE ESSENTIALS OF HISTOLOGY, DESCRIPTIVE AND PRACTICAL, FOR THE USE OF STUDENTS**, by Sir Edward Sharpey-Schafer, F.R.S.; Twelfth Edition; 1929. London: Longmans, Green and Company. Demy 8vo., pp. 638, with illustrations. Price: 15s. net.
- A DIET SUMMARY IN AVERAGE SERVINGS FOR DIABETICS AND OTHERS SUFFERING FROM DISORDERS OF METABOLISM**, by P. J. Cammidge, M.D. (London); 1929. London: Baillière, Tindall and Cox. Crown 8vo., pp. 8. Price: 1s. net.

## Diary for the Month.

- Nov. 19.—Tasmanian Branch, B.M.A.: Council.  
 Nov. 19.—New South Wales Branch, B.M.A.: Executive and Finance Committee.  
 Nov. 19.—New South Wales Branch, B.M.A.: Organization and Science Committee.  
 Nov. 20.—Western Australian Branch, B.M.A.: Branch.  
 Nov. 20.—Section of Obstetrics and Gynaecology, New South Wales Branch, B.M.A.  
 Nov. 22.—Queensland Branch, B.M.A.: Council.  
 Nov. 26.—New South Wales Branch, B.M.A.: Medical Politics Committee.  
 Nov. 26.—Illawarra Suburbs Medical Association, New South Wales (Annual).  
 Nov. 27.—Victorian Branch, B.M.A.: Council.  
 Nov. 28.—New South Wales Branch, B.M.A.: Branch.  
 Nov. 28.—South Australian Branch, B.M.A.: Branch.  
 DEC. 3.—Tasmanian Branch: Council.  
 DEC. 3.—New South Wales Branch, B.M.A.: Ethics Committee.

## Medical Appointments.

Dr. Sylvester John Minogue (B.M.A.) has been appointed Medical Superintendent of the Department of Mental Hospitals, New South Wales.

Dr. Stanley William King (B.M.A.) has been appointed Assistant Microbiologist in the Office of the Director-General of Public Health, New South Wales.

Dr. John Cooper Booth (B.M.A.) has been appointed Director, Division of Venereal Diseases, in the Office of the Director-General of Public Health, New South Wales.

Dr. Isabel May Brown has been appointed Medical Officer in the Office of the Director-General of Public Health, New South Wales, on probation for a period of not less than six months.

## Medical Appointments Vacant, etc.

For announcements of medical appointments vacant, assistants, locum tenentes sought, etc., see "Advertiser," page xx.

LAUNCESTON PUBLIC HOSPITAL, TASMANIA: Resident Medical Officer (male).

QUEEN VICTORIA MEMORIAL HOSPITAL, MELBOURNE: Junior Resident Medical Officers, Senior Resident Medical Officers.

STATE PUBLIC SERVICE, QUEENSLAND: Second Assistant Medical Superintendent.

ST. VINCENT'S HOSPITAL, SYDNEY: Honorary Clinical Assistant in Dermatology.

THEADELAIDE HOSPITAL, ADELAIDE: Medical Officer.

THE BRISBANE AND SOUTH COAST HOSPITALS BOARD: Honorary Clinical Assistants, Honorary Physician.

THE WOMEN'S HOSPITAL, CROWN STREET, SYDNEY: Resident Medical Officer, Junior Resident Medical Officer.

## Medical Appointments: Important Notice.

MEDICAL practitioners are requested not to apply for any appointment referred to in the following table, without having first communicated with the Honorary Secretary of the Branch named in the first column, or with the Medical Secretary of the British Medical Association, Tavistock Square, London, W.C.I.

BRANCH.	APPOINTMENTS.
NEW SOUTH WALES: Honorary Secretary, 21, Elizabeth Street, Sydney.	Australian Natives' Association. Ashfield and District United Friendly Societies' Dispensary. Balmain United Friendly Societies' Dispensary. Friendly Society Lodges at Casino, Leichhardt and Petersham United Friendly Societies' Dispensary. Manchester Unity Medical and Dispensing Institute, Oxford Street, Sydney. North Sydney Friendly Societies' Dispensary Limited. People's Prudential Assurance Company, Limited. Phoenix Mutual Provident Society.
VICTORIAN: Honorary Secretary, Medical Society Hall, East Melbourne.	All Institutes or Medical Dispensaries. Australian Prudential Association Proprietary, Limited. Mutual National Provident Club. National Provident Association. Hospital or other appointments outside Victoria.
QUEENSLAND: Honorary Secretary, B.M.A. Building, Adelaide Street, Brisbane.	Members accepting appointments as medical officers of country hospitals in Queensland are advised to submit a copy of their agreement to the Council before signing. Brisbane United Friendly Society Institute. Stannary Hills Hospital. Mount Isa Hospital.
SOUTH AUSTRALIAN: Secretary, 207, North Terrace, Adelaide.	All Contract Practice Appointments in South Australia. Booreroo Centre Medical Club.
WESTERN AUSTRALIAN: Honorary Secretary, 65, Saint George's Terrace, Perth.	All Contract Practice Appointments in Western Australia.
NEW ZEALAND (WELLINGTON DIVISION): Honorary Secretary, Wellington.	Friendly Society Lodges, Wellington, New Zealand.

Medical practitioners are requested not to apply for appointments to positions at the Hobart General Hospital, Tasmania, without first having communicated with the Editor of **THE MEDICAL JOURNAL OF AUSTRALIA**, The Printing House, Seamer Street, Glebe, New South Wales.

## Editorial Notices.

MANUSCRIPTS forwarded to the office of this journal cannot under any circumstances be returned. Original articles forwarded for publication are understood to be offered to **THE MEDICAL JOURNAL OF AUSTRALIA** alone, unless the contrary be stated.

All communications should be addressed to "The Editor," **THE MEDICAL JOURNAL OF AUSTRALIA**, The Printing House, Seamer Street, Glebe, Sydney. (Telephones: MW 2651-2.)

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